

62D CONGRESS }
2d Session }

HOUSE OF REPRESENTATIVES

{ DOCUMENT
No. 123 }

ANNUAL REPORT OF THE
COMMISSIONERS OF THE
DISTRICT OF COLUMBIA
YEAR ENDED JUNE 30, 1911

Vol. II
ENGINEER DEPARTMENT
REPORTS



WASHINGTON
1911



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EXTRACT FROM THE REPORT OF THE COMMISSIONERS OF THE
DISTRICT OF COLUMBIA FOR THE FISCAL YEAR ENDED JUNE 30,
1911.

OFFICE OF THE COMMISSIONERS
OF THE DISTRICT OF COLUMBIA,
Washington, December 4, 1911.

*To the Senate and House of Representatives of the United States of
America in Congress assembled:*

The Commissioners of the District of Columbia herewith submit for the information of Congress, pursuant to the requirements of section 12 of an act providing a permanent form of government for the District of Columbia, approved June 11, 1878 (20 Stat. L., 1908), a report of their official doings for the fiscal year ended June 30, 1911.

* * * * *

ELIMINATION OF GRADE CROSSINGS.

The commissioners have included in their estimates for the fiscal year 1913 an item of \$110,000 to provide for constructing a suitable viaduct and bridge to carry Benning Road over the tracks of the Philadelphia, Baltimore & Washington and the Baltimore & Ohio Railroad companies.

While all railroad crossings have been eliminated within the limits of the city of Washington, under the acts of Congress approved February 12, 1901, and February 28, 1903, there exist in the District of Columbia other grade crossings on much-traveled highways. In the District appropriation act for the present fiscal year provision has been made for eliminating a grade crossing at Cedar Street in Takoma Park by the construction of a subway and bridge over the tracks of the Baltimore & Ohio Railroad Co., and arrangements have been made with the railroad company to carry out this work. The grade crossing at Benning is another dangerous one, and the commissioners believe an appropriation should be made to carry Benning Road over the railroad tracks at this point during the next fiscal year.

GRADE DAMAGES.

The work of ascertaining the damages to private property caused by changes in the grade of streets and alleys due to the elimination of grade crossings along the lines of steam railroads and to the location of the Union Railroad Station is still in progress.

There were 84 claims for damages heard and determined by the grade damage claims commission during the year, involving 177 pieces of realty. This was a decrease of 46 over the number of claims heard during the previous year. In 31 of these cases, involving 45 pieces of property, damages were awarded the owners of property in the amount of \$19,045, against a similar allowance during the last

fiscal year of \$104,810. In 53 cases, involving 132 pieces of real estate, the commission awarded no damages, finding that whatever damages had been caused were offset by benefits. Six cases were compromised, involving a saving of \$3,575 over the amounts awarded by the commission. In these cases the District was entitled to jury trials, but the cases were compromised by agreement to avoid the expense of such trials.

During the year there were 6 petitions for damages filed, against 67 for the previous year. The total number of cases filed since the commission was organized is 856.

The total amount paid out by the District in settlement of these grade damages up to the close of the fiscal year was \$439,498.10. There are but 2 cases remaining for the consideration of the grade damage claims commission and 25 cases to be heard by juries on appeal from decision of the commission. The services of the special counsel employed on this work have been dispensed with, and the work will hereafter be conducted under the direction of the corporation counsel. It is expected that it will be completed during the current fiscal year.

ROADWAY PAVEMENTS.

The sum of \$466,500 was appropriated for paving new roadways and for repairing and repaving old roadway pavements. Of this amount \$400,000 was for resurfacing and repairing old asphalt and coal-tar pavements. In this paving work sheet asphalt and asphalt block were used. The prices paid for constructing new sheet-asphalt pavement and asphalt-block pavement were as follows:

	Per square yard.
Laying sheet-asphalt pavement.....	\$1. 77
Laying vitrified-block gutters.....	1. 40
Laying asphalt-block pavement.....	1. 65

The prices for the current fiscal year (1912) are as follows:

Laying sheet-asphalt pavement.....	\$1. 70
Laying vitrified-block gutters.....	1. 40
Laying 4-inch asphalt-block pavement inside of old city limits of Washington..	1. 65
Laying 4-inch asphalt-block pavement outside of old city limits of Washington..	1. 80

The five-year contract for resurfacing and repairing asphalt pavements expired on June 30, 1911, and a new contract was entered into for a period of two years from July 1, 1911, at the following prices:

Laying standard asphalt pavement (2½ inches asphalt surface, 2 inches binder, before compression, with 6-inch concrete base).....	\$1. 68
Laying standard asphalt surface (2½ inches before compression).....	. 64
Laying standard asphalt surface (resurfacing by heater method), per cubic foot..	. 66
Laying asphalt binder in connection with resurfacing work.....do.....	. 28
Laying standard asphalt surface (for repairs and miscellaneous work, cuts, etc.), per cubic foot.....	. 57
Laying asphalt binder (for repairs and miscellaneous work, cuts, etc.), per cubic foot.....	. 43
Laying standard asphalt surface for repairs, etc., within the space required by law to be kept in repair by street-railway companies.....per cubic foot..	. 63
Laying asphalt binder for repairs, etc., within the space required by law to be kept in repair by street-railway companies.....per cubic foot..	. 48

The appropriation for laying new pavements was comparatively small. These new pavements are laid either of sheet asphalt or asphalt block. The sheet-asphalt pavements are laid on a Portland

cement concrete base 6 inches thick, with a binder course $1\frac{1}{2}$ inches thick, and an asphalt wearing surface $1\frac{1}{2}$ inches thick after compression. Asphalt-block pavements are laid on a gravel base 5 inches thick, with a cushion of 2 inches of sand.

RESURFACING WORN-OUT PAVEMENTS.

The sum of \$400,000 was appropriated for resurfacing and repairs to asphalt pavements. This was an increase of \$100,000 over the appropriation for the preceding year. The area of asphalt pavements in the District of Columbia is nearly 3,000,000 square yards, which is probably a greater area than that in any other city in the world with the population of the District of Columbia.

During the fiscal year 1910 about 98,000 square yards of old pavement were replaced. During the fiscal year just closed about 183,000 square yards were relaid. At the beginning of the year the average age of the older pavements was 14 years and the extreme age 30 years. By reason of the work done during the year this average age was decreased, and under the appropriation of \$425,000 made for the fiscal year 1912 this average age will be further decreased, so that for the fiscal year 1913 the commissioners in their estimates have asked but \$390,000, a decrease of \$35,000 over the amount appropriated for the present fiscal year.

MUNICIPAL ASPHALT PLANT.

The commissioners have included in their estimates for the fiscal year 1913 an item asking for authority to establish and operate a municipal asphalt plant.

In the District of Columbia there are over 3,000,000 square yards, or 145 miles, of asphalt pavement. The average life of an asphalt pavement is from 20 to 22 years, and some of the older pavements have been laid 39 years. Two years ago the average age (which is to be distinguished of course from the average life) of our asphalt pavements was about 14 years, and this average age was considerably increasing.

Now it is actually cheaper to maintain pavements at an average age of 11 years, resurfacing when the cost of patching becomes excessive, than it is to maintain them on a lower standard and of a greater average age. In order to bring the average age down to 11 years, Congress has lately increased the appropriation, and in another year or two we shall have arrived at the point where the pavements can be maintained with the maximum of economy. For 1913 we ask for \$390,000, in lieu of the appropriation of \$425,000 for the current year. Very soon, when the average age of our pavements has been reduced to 11 years, we can compute by a simple formula the amount that will be required for asphalt-pavement maintenance. A most careful study shows that we shall then need $10\frac{1}{2}$ cents each year for each square yard of pavement in existence if we continue to operate under the contract system or approximately $9\frac{1}{2}$ cents per square yard paid per annum if we procure a municipal plant, following the example of many of the more carefully managed American municipalities.

In doing the work there is a saving of the contractor's profit. The same force which is now used in inspecting a contractor's work can be used in carrying on the work itself, thus reducing the number of those employed and paid either directly or indirectly by the public. There being no adverse interest between the agency doing the work and the agency paying for it, better results can be obtained. A plant owned and operated by the District would have continuous and regular employment, while a contractor in making a bid has to cover not only the period when his plant is working on the contract for a limited time, but also the period when the plant is idle. These considerations indicate the economies that would result from the ownership of a plant by the District.

Municipal asphalt plants are now in operation in Detroit, Columbus, Dayton, Indianapolis, Kansas City, Denver, Seattle, and elsewhere.

A site is available along the water front, and this site also has railroad facilities.

SIDEWALKS AND ALLEYS.

Two hundred thousand dollars were appropriated for paving sidewalks and alleys in all parts of the District of Columbia. Sidewalks are constructed of cement, and the work is done under contract. Alleys are paved with vitrified or asphalt block, and the work is done by day labor. The prices paid under contract for laying cement sidewalks during the fiscal year were as follows:

	Per square yard.
For large jobs adjoining paved streets.....	\$0.97½
For large jobs adjoining unpaved streets and for all small jobs.....	1.19

For the present fiscal year (1912) the prices are as follows:

	Per square yard.
For large jobs adjoining paved streets.....	\$0.9675
For large jobs adjoining unpaved streets and for all small jobs.....	1.20

During the year sidewalks aggregating 63,945 square yards were laid. The greater part of these walks were constructed in the rapidly improving suburbs. There still remain a considerable number of inferior brick walks in the central part of the city, which are badly worn and should be replaced.

One-half the cost of laying sidewalks is assessed against the abutting property, and ordinarily the commissioners await a petition from the owners of more than half of the frontage along a block before ordering a new walk laid. An exception is, however, made where a walk becomes dangerous; in such cases the commissioners order the work done without waiting for a petition. The demand for laying sidewalks and paving alleys is quite constant. In the alley work one-half the cost is also assessed against abutting property. This work is done by day labor, and during the year 33,492 square yards of alley surface was paved.

COUNTY ROADS AND SUBURBAN STREETS.

The sum of \$221,100 was expended for the construction and repair of county roads and suburban streets, of which \$140,000 was for repair and the balance for grading and macadamizing.

The use of oil for dust laying and road preservtaion was considerably extended. Oils of several kinds were used, including a considerable amount of emulsified oil; this latter oil was found to be better adapted to residence streets where there is much pedestrian traffic on account of being less adhesive to the feet when first applied; it is also less expensive. The heavier oils were found to be best adapted to roads having considerable automobile travel and the lighter oils to roads having heavy hauling and where the surface is loose. These oils are used instead of sprinkling with water, with the result that the dust is kept down at all periods of the day instead of drying out at intervals. The cost of laying varied from about 3 cents to a little over 6 cents per square yard; the cost of watering was about $2\frac{1}{2}$ cents per square yard. While the expense of oiling is greater than of watering the additional advantage of preservation compensates for the increased expense, for the life of the roadway is considerably increased.

The use of bituminous binders in the repair and construction of macadam roads, which was begun last year, was continued as far as funds permitted. By the use of a good binder carefully applied the life of the roadway may be considerably extended, the cost of repair lessened, and the dust nuisance reduced to a minimum, with a consequent additional decrease of cost. The cost of the application of a heavy bituminous binder is from 20 to 25 cents per square yard for a layer penetrating 2 inches.

BRIDGES.

Contract was made during the year for strengthening and stiffening the Calvert Street Bridge over Rock Creek. There is no doubt, however, that this bridge should be replaced at an early date by a stronger and more ornamental structure, and the commissioners have included in their estimates an item looking toward the preparation of plans for such a structure.

Plans are being prepared for the construction of a bridge across Rock Creek on the line of Q Street, for which an appropriation was made in the last District appropriation act.

Four bronze tigers were placed at each side of the entrances to the bridge over Piney Branch on the line of Sixteenth Street.

A concrete arch bridge of 16-foot span, with rustic walls, was built on Beach Drive in Rock Creek Park about half mile north of Milk House Ford, and a 12-foot span reenforced concrete arch was built on the same road about a quarter of a mile above the ford.

On the driveway connecting Sixteenth Street with the Beach Drive, at Military Road, a concrete arch was built.

The commissioners have included in their estimates for the next fiscal year an item for constructing a bridge across Rock Creek on the line of Pennsylvania Avenue, in connection with which it is proposed to widen Pennsylvania avenue on both sides of the creek so as to provide a better means of communication with that part of the city across the creek, formerly known as Georgetown.

There are 160 bridges under the control of the District of Columbia, the approximate cost of which has been \$3,400,000.

STREET RAILWAYS.

By an act of Congress approved March 2, 1910, the City & Suburban Railway was directed to extend its underground system on North Capitol Street, from T Street to a point 300 feet north of V Street, replacing its overhead line between these limits. This work has been completed.

By an act of Congress approved May 17, 1910, the City & Suburban Railway was directed to remove its double tracks on Michigan Avenue, from Monroe Street to the tracks of the Baltimore & Ohio Railroad, and to construct a double-track railroad in Monroe Street eastward from said intersection across the Monroe Street Bridge over the tracks of the Baltimore & Ohio Railroad to Twelfth Street NE., and along Twelfth Street to the Bunker Hill Road, in order to give street-car service to the subdivision of Brookland. This work has been done.

The Anacostia & Potomac River Railroad has replaced its single track on Nichols Avenue, Anacostia to Congress Heights, with a double track.

SURVEYOR'S OFFICE.

The work of the surveyor shows a decrease from that of the preceding year, due to the falling off in building operations.

The work of this office is divided into that done for private parties, for which fees are charged, and that done for the District of Columbia. The total amount received in fees for the year was \$21,496.17, a decrease of \$1,395.63 from those received during the previous year.

Twenty-three large tracts of agricultural land were subdivided into blocks and building lots. These included the subdivisions of the Chevy Chase Land Co., North Brookland, Randle Highlands, Massachusetts Avenue Heights, and Shepherd Heights. In connection with the subdivision of Massachusetts Avenue Heights, a large part of the tract was dedicated for streets and park boulevards.

Legislation is recommended by the surveyor which would authorize him to place upon his records the same method of designation of blocks and lots that is used by the assessor for assessment purposes. At present the assessor uses one method of designation and the surveyor another. Great confusion arises from the use of these separate designations, and the passage of this legislation is earnestly recommended. Legislation is also recommended for the condemnation of all streets in the subdivision known as Barry Farm. While streets have been laid out in this subdivision, there is no public easement over them, and therefore no improvements in the way of sewer, water, and roadway pavement can be made until they become public highways. This creates insanitary conditions and is a menace to the health of the residents of that section. The streets should be condemned, and the total cost assessed against the owners of the abutting property.

STREET AND ALLEY EXTENSIONS.

The following street-extension measures were passed during the year:

Reno Road NW., from Fessenden Street to Chesapeake Street.

Thirteenth Street NW., from Madison Street to Piney Branch Road.

Seventeenth Street NE., from Brentwood Road to Rhode Island Avenue.

Change in highways plan between Mount Pleasant Street, Columbia, Quarry, and Adams Mill Road NW.

Sixteenth Street entrance to the Zoological Park.

Q Street NW., Twenty-third to Twenty-eighth Streets NW.

Van Buren Street NW., from Piney Branch Road to its present western terminus, east of Third Street NW.

Land in square 534, for an Interior Park.

Connection between Belmont and Fifteenth Streets NW.

Colorado Avenue and Kennedy Street NW.

Condemnation cases were filed during the year to open alleys in squares 734, 211, 2863, 2861, 2833, 252, 1043, 3039, 1014, 2861, 100, 2846, 970, 2563, 2527. Some of these cases have been finally completed and others are pending, as shown in the report of the surveyor.

TREES AND PARKING.

The number of trees planted on streets, in school yards, and on playgrounds during the year was 3,869, a decrease of 161 over the preceding year. The number of trees removed was 2,214, an increase of 63 over the preceding year. The net increase in the number of trees during the year was 1,655.

The total number of trees planted in streets, in school yards, and on playgrounds at the close of the year was 99,609.

There are 280.52 miles of streets on which trees have been planted, an increase of 5.17 miles over the preceding year. The mileage of trees on these streets is 561.04. The trees are planted on both sides of the streets, and the mileage is based on 352 trees per mile. The amount expended in the planting and care of trees was \$38,567.75.

The varieties of trees planted were elms, gingkos, lindens, Norway maples, pin oaks, red oaks, sugar maples, and sycamores.

The District appropriation act for the fiscal year beginning July 1, 1912, contained an item of \$5,000, which was made available in March, 1911, for exterminating insects injurious to trees. A high-power spraying machine was purchased at a cost of \$1,350. This machine has been kept steadily in service in spraying the trees, principally elms, lindens, and Norway maples, with arsenate of lead. This was found to be a very effective method of dealing with leaf-destroying insects, since it poisons their food supply and practically starves them out.

Little progress was made in the general trimming of trees, owing to the amount of work incident to the care of trees as the result of heavy storms during the year, when trees were blown down and branches broken throughout the city.

STREET AND ALLEY CLEANING.

The street and alley cleaning division has charge of the sprinkling, sweeping, and cleaning of streets, avenues, and alleys, except such work on county roads and suburban streets as is done under the supervision of the superintendent of county roads. It also has supervision over the collection and disposal of garbage, ashes, miscellaneous refuse, dead animals, and night soil.

The last District appropriation act, approved March 2, 1911, authorized the commissioners to carry on the work of street and alley cleaning by day's labor instead of by contract, beginning July 1,

1911. The work is now being done in that manner, and in connection therewith the old street-cleaning stable is being remodeled; a new site has been purchased for an additional street-cleaning stable and new equipment purchased. On the new site it is intended to erect a modern, sanitary, fireproof stable, and the old stables will be remodeled so as to be sanitary and fireproof.

The street cleaning is divided into that done by machines and that done by hand. Under the contract that was in operation until July 1, 1911, all paved streets, outside of the hand-swept section, were cleaned about three times a week, the area cleaned amounting to 2,500,000 square yards. The cleaning by hand was done on streets in the central portion of the city and amounted to 1,877,000 square yards, until May 26, 1911, when the yardage was increased to 2,005,000 square yards. From 60 to 70 miles of unpaved streets within the city and outside of the city were sprinkled by the street-cleaning division. The paved alleys in the city were cleaned about once a week. The total area of alleys cleaned was about 985,159 square yards. The unimproved streets in the city and in such part in the county as is taken care of by the street cleaning division were cleaned about once every 10 days, the area cleaned amounting to about 905,000 square yards.

The machine sweeping cost $22\frac{1}{2}$ cents per 1,000 square yards. The hand cleaning cost 17.53 cents per 1,000 square yards as compared with 17.78 cents per 1,000 square yards during the preceding fiscal year.

During the year the use of squeegee and flushing machines was begun in the hand-cleaning section of the city, an area of 1,877,000 square yards. The cost of operating the squeegees was 11.62 cents, and of flushing 31.57 cents per 1,000 square yards. The cost of cleaning paved alleys was 40 cents per 1,000 square yards, and of cleaning unimproved streets 41.76 cents per 1,000 square yards.

The sweepings from the hand-swept portion of the city, during the portion of the year from July 1 to October 31 were sold, and the sum of \$811.51 received therefor. During the balance of the year these sweepings were used as fertilizer in connection with the development of the workhouse farm at Occoquan, Va.

REMOVAL OF CITY REFUSE.

Forty-eight thousand two hundred and seventeen tons of garbage were collected and disposed of at a contract price of \$68,400; 95,785 tons of ashes were collected at a contract price of \$73,150; 108,789 cubic yards of miscellaneous refuse was collected at a contract price of \$17,000; 23,834 barrels of night soil was collected at a contract price of \$16,600; and 16,720 dead animals were collected at a contract price of \$2,855.

A partial investigation by the commissioners leads them to believe that the removal of city refuse which is now done under contract could be done at much less cost by the municipality. The present contracts do not expire until June 30, 1915. The commissioners have included in their estimates an item asking authority to more thoroughly investigate the subject, and to have plans prepared for a garbage-reduction plant to be operated by the municipality.

CLEANING SNOW AND ICE.

In cleaning snow and ice from crosswalks and gutters work was carried on during the year for 22 days, at a total cost of \$12,632.16. While this city is subjected to a good many snowstorms, few of them are severe, and the climate is such that during the greater part of the winter the snow melts very rapidly. After February 1 of the last fiscal year there were five snowstorms averaging from 3 to 5 inches in depth, and in each case within three or four days the snow had entirely disappeared by melting. To have hauled this snow from the streets would have cost a very great sum of money. It is recommended that hereafter there be no special appropriation for snow removal, but that the general fund of the street-cleaning division be made available for that purpose. The District street-cleaning force, men, horses, and plant, should be regularly employed, whether they be occupied in removing dirt or snow.

BUILDINGS.

The estimated value of building work during the year, not including the buildings of the United States Government, was \$14,698,034, which was a decrease over the preceding year of \$1,733,912; the number of permits issued was 6,153, a decrease of 1,267 over the preceding year. In the last annual report of the inspector of buildings the number of permits issued was given as 10,397 for the fiscal year 1910. This was an estimate. On actual count the number of permits issued was 7,420, and for the present fiscal year on actual count the number issued was 6,153, a decrease, as above stated, of 1,267. The number of permits granted for projections beyond the building line was 2,480.

The number of dwelling houses constructed was 1,922, a decrease of 101 over the preceding year; the number of apartment houses erected was 18, a decrease of 61 over the preceding year; the number of business buildings erected was 351, an increase of 31 over the preceding year. The total number of new buildings erected was 2,293, a decrease of 253 over the preceding year.

The distribution of the cost of these improvements, including repairs to existing buildings, is as follows:

Location.	Buildings.	Repairs.
Northeast.....	\$594,608	\$79,534
Southeast.....	406,696	43,432
Northwest.....	4,638,722	2,223,062
Southwest.....	214,795	44,712
County.....	5,985,988	464,485
Total.....	11,840,809	2,857,225

There are estimated to be 56,052 brick buildings and 25,194 frame buildings. This is an increase during the year of 1,807 brick buildings and 486 frame buildings.

By reason of the general decrease in building operations the total amount received in fees was \$30,354.46, as compared with \$34,474.82 collected for fees during the previous year. The expenses of the building inspector's office amounted to \$31,323.25, so that the fees

collected were about \$1,000 less than the cost of running the office. It is not recommended, however, that any increase be made in the schedule of fees, as in the year previous the fees collected exceeded the expenses of the office by about \$5,200, and it is believed that the fees in the fiscal year 1912 will considerably exceed the appropriation for the building office made for that year.

During the year there has been an increase in the number and size in the buildings of fireproof construction, particularly hotels, theaters, and office buildings. While the number of apartment houses and dwellings has not shown the same ratio of increase, the character of construction has improved, particularly in the adoption of fireproof construction in apartment houses.

FIRE ESCAPES.

One inspector in the building office is detailed to enforce compliance with the terms of the law requiring the erection of fire escapes. He visited apartment houses, theaters, hotels, and business buildings to the number of 2,420, and served notices to erect fire escapes to the number of 639; 235 fire escapes were erected, and action to require the erection of others was taken; 11 cases were prosecuted in the police court.

ELEVATORS.

The elevators in the District of Columbia are inspected by two inspectors under the direction of the inspector of buildings. The total number of elevators installed during the year was 132. These inspectors report that the elevators have been found generally free from defective mechanism, and whenever they were found unsafe they have been promptly repaired. No accidents or loss of life, due to defective elevators occurred during the year, though three persons were injured through personal carelessness.

While there is no obligation placed by law on the commissioners to inspect the elevators in buildings owned or occupied by the United States Government, inspections to the number of 94 were made upon the request of the heads of executive departments, which was an increase of 74 over the requests for the preceding year.

Previous to August 1, 1910, the fee for elevator permits was \$1 for each permit. On that date the fee was raised to \$5 per elevator, and the revenue from this source during the year amounted to \$660.

ELEVATOR OPERATORS.

Under date of February 1, 1911, the regulations regarding the operation of elevators were amended so as to require the examination of elevator operators. The examining board consists of the two inspectors of elevators and the inspector for the board for the condemnation of insanitary buildings. A fee of 50 cents is charged for an operators permit. During the year 704 applicants were licensed and 54 failed to obtain licenses. The result of this examination and licensing has been an increased efficiency in elevator operators. The revenue received from this source amounted to \$352 for the four months, February to June, inclusive, and it is estimated that the

annual income from this source will approximate \$1,000 per year. The members of the board of examiners receive no additional compensation for their work.

INSPECTION OF PRIVATE BUILDINGS.

All private building construction in the District of Columbia is inspected under the direction of the inspector of buildings. The total number of inspections during the year was 72,905, an increase over those of the previous year of 9,879. There are eight regular field inspectors engaged on this work, and one temporary inspector is employed during the heaviest part of the building season. Each inspector makes about 27 daily inspections. Increased efficiency in this work could be accomplished if better means of transportation was employed for the inspectors.

INSPECTOR OF BOILERS.

The number of steam boilers inspected by the inspector of boilers was 525. The compensation of this official is received from fees paid by the owners of the boilers. The total amount received from such fees during the year was \$2,435, and the expense of inspection was \$609, leaving a net compensation to the inspector of \$1,826.

CONSTRUCTION OF MUNICIPAL BUILDINGS.

The municipal architect, whose duty it is to prepare or supervise the preparation of plans for and superintend the construction and repair of all municipal buildings belonging to the District of Columbia, reports that during the year 25 buildings and additions to buildings were under construction. These included:

Chemical engine house, No. 2, Pennsylvania Avenue and Twenty-eighth Place SE.
McKinley Manual Training School, No. 130, third extension, Rhode Island Avenue and Seventh Street NW.

Playground shelter, Rosedale playground.

Playground shelter, Georgetown playground, Thirty-fourth Street and Volta Place NW.

Normal school, No. 162, Eleventh and Harvard Streets NW.

Eight-room school, No. 163, Farragut Street, between Thirteenth and Fourteenth Streets NW.

Manual training school, No. 164, Wisconsin Avenue and Thirty-third street NW.

Twelve-room school, No. 165, Eighth and T Streets NW.

Eight-room school, No. 166, Randle Highlands, D. C.

Central heating plant for M Street High School, New Jersey Avenue near M Street NW.

Armstrong Manual Training School addition, P street, between First and Third Streets NW.

Six-room school, No. 167, Ivy City.

Manual training school, No. 168, First and I Streets SW.

Engine house, No. 24, Georgia Avenue, near Rock Creek Church Road NW.

Takoma Park Branch Library, Fifth and Cedar Streets, Takoma Park.

Western High School addition, No. 117, corner Thirty-fifth and R Streets NW.

Industrial Home School heating plant, corner Wisconsin Avenue and Observatory Lane, NW.

Heating Chevy Chase School, Chevy Chase.

Grading and improvements at the Langdon School, Langdon.

Garage and lodge at Fort Reno.

Grading and improvements at the Thompson School, Twelfth and L Streets NW.

Changes in heating at the Police Court Building.

Addition to the District cement warehouse, corner Fourteenth and D Streets SW. Mortuary Building, at the Tuberculosis Hospital, Fourteenth Street NW., extended. Temporary stable for street cleaning department.

The following buildings were completed during the year:

Public-Convenience Station, No. 3, corner Ninth and K Streets NW.
Thompson School, No. 156, corner Twelfth and L streets NW.
Monroe School addition, No. 72, Columbia Road, near Georgia Avenue NW.
No. 23 Engine House, G Street, between Twenty-first and Twenty-second Streets NW.
Anacostia Police Station, Anacostia.
Potomac School, No. 159, corner Tenth and E Streets SW.
John Eaton School, No. 160, Cleveland Park.
Bennings School addition, No. 48, Bennings Road, D. C.
Chevy Chase School addition, No. 113, Chevy Chase, D. C.
Lovejoy School addition, No. 124, Twelfth and D Streets NE.
Western High School addition, No. 117, Thirty-fifth and Reservoir Streets NW.
Bunker Hill School, Bunker Hill Road, D. C.
Engine House No. 2, Twelfth Street between G and H Streets NW.

In addition plans are in course of preparation for a stable for the street-cleaning department, a colored normal school, an addition to the engine house at Tennallytown, D. C., a pound and stable for the health department, a colored ward at the Home for the Aged and Infirm, and for the following school buildings: Burrville, Military Road, Manual Training, twelfth division.

The municipal architect has continued to show marked ability in the construction of schoolhouses. He secures the utmost for each dollar of expenditure, and our schools of recent years are attractive in appearance and models of convenience and safety. Mr. Ashford's great success with the schools has been achieved in the face of conditions recognized often as difficult, but met by him with much patience.

REPAIRS TO MUNICIPAL BUILDINGS.

All municipal buildings are kept in repair by the superintendent of repairs, under the direction of the municipal architect.

The appropriation for repairs and improvements to school buildings and grounds for the year was \$60,000. On March 16, 1911, this appropriation became exhausted. The appropriation of \$70,000 for the fiscal year 1912 was made immediately available on the passage of the bill, March 2, 1911. This has made it possible to utilize the season of vacation in the schools to the best advantage.

It is sought in making repairs to school buildings to make them where most needed to keep the buildings from deteriorating. Owing to the growing demands for repairs, it is a serious problem to expend the funds allotted so as to prevent general deterioration and at the same time comply with reasonable requests for minor repairs.

Since 1909, \$155,000 has been appropriated for the purpose of replacing wooden stairways in brick buildings with fireproof construction, installing fire escapes, etc., and providing fire-protection apparatus. With this appropriation iron stairways have been constructed in 40 buildings, 41 ash and fuel vaults have been constructed, 26 exit doors changed, 28 new doors opened, and 29 ceilings over heating apparatus replaced with fireproof material. There have also been installed in school buildings 145 fire gongs and 450 fire extinguishers. About 95 per cent of all of the work of this character necessary has been accomplished, and the buildings are believed to be in a reasonably safe condition.

Sanitary drinking fountains have been installed in school buildings to replace the old-style drinking cup, at the rate of about 100 each year. To entirely replace these old drinking cups would require an appropriation of \$48,000 for about 1,200 fountains.

It is estimated that the present value of school buildings and grounds is \$10,000,000, and the amount appropriated for repairs to these buildings is less than 1 per cent of their value. The amount of floor area in these buildings is over 2,200,000 square feet.

The amount expended in repairing damages caused by fire in school buildings was \$844.

For repairs and improvements of engine houses \$10,000 was appropriated and expended, and for repairs to police stations \$5,500 was appropriated and expended.

In repairing plumbing in school buildings \$11,506.12 was expended in addition to that expended by the inspector of plumbing in installing new plumbing in the older buildings.

In the police court building \$500 was expended in repairs.

CONDEMNATION OF INSANITARY BUILDINGS.

The board for the condemnation of insanitary buildings examined 393 buildings, of which 187 were demolished and 213 repaired. Of those demolished 145 were located on streets and 42 in alleys, and of those repaired 142 were on streets and 71 in alleys.

The total number of buildings examined by the board since its creation on May 1, 1906, to June 30, 1911, was 2,189, of which 1,185 were demolished and 886 repaired; of those demolished 810 were on streets and 375 in alleys, and of those repaired 571 were on streets and 315 in alleys. At the close of the year there were 118 cases pending, of which 72 were on streets and 46 in alleys.

The number of tenants in streets and alleys required to secure other quarters through action of the board through the year is estimated at 608; the total number since the creation of the board is estimated at 3,580.

The estimated number of tenants in streets and alleys benefited by repairs during the year was 782, and the total number since the creation of the board, 3,218.

The assessed valuation of improvements removed in alleys during the year was \$4,700, and in streets, \$3,800. This does not include the value of the land.

The removal of insanitary buildings has been accomplished with the cooperation of owners and agents, and during the year it has not been necessary for the board to demolish any structures through the refusal or neglect of the owners to comply with its orders.

One of the subjects to which the board is giving much consideration is the conversion of certain alleys into interior parks and playgrounds. As the result of its investigation Congress appropriated, last year, the sum of \$78,000 to convert Willow Tree Alley, in square 584, into a playground and recreation center, and condemnation proceedings are now in progress to accomplish this result. Another alley which should receive similar treatment is Goat Alley, located in square 449, between Sixth and Seventh, L and M Streets NW. This is one of the large inhabited alleys, and contains 42 brick and frame structures,

providing living quarters for 11 white and 243 colored inhabitants. The buildings in this alley generally are of such character that they can not be condemned under the law. The cost of converting this alley into an interior park is estimated at \$60,000.

The work of the board during the year has been of great value in ridding the city of an undesirable class of houses.

PLUMBING AND PLUMBING INSPECTION.

During the year the plumbing office made 46,035 inspections, an increase of 1,082 over the number made in the previous year.

There were 75 cases handled by the inspector of plumbing under the compulsory-drainage act. This act requires that the District of Columbia install plumbing in private residences upon the failure of the owner to do so, after notice; the cost of the work is assessed against the property. In these cases the District was required to install plumbing in 8 premises, and the work was done by the owner in 28 premises. The other cases are still pending.

PLUMBING IN PUBLIC SCHOOLS.

The appropriation of \$40,000 for repairs to and changes in plumbing in the older school buildings was practically all expended. In four buildings the plumbing was entirely remodeled at a cost of \$15,702.05, and minor repairs and changes were made in 16 school buildings at a total cost of \$10,387.06. Of the appropriation \$11,506.12 was allotted to the superintendent of repairs, for minor plumbing work.

PUBLIC-CONVENIENCE STATIONS.

Three public-convenience stations are now in operation. They are located at Seventh Street and Pennsylvania Avenue NW., Thirteenth Street and Pennsylvania Avenue, and at Ninth and K Streets NW. These fill a long-felt municipal need, and their use demonstrates that others should be erected. Such stations located at Ninth and F Streets, Fifteenth Street and New York Avenue, Thirty-second and M Streets, and at the Peace Monument would be of great advantage to the public. During the last year the patrons of the existing convenience stations numbered approximately 2,000,000, and the receipts from the use of the pay compartments amounted to over \$2,200, an increase of \$434 over that received for the last fiscal year.

PUBLIC BATHS.

The commissioners again invite attention for the necessity for the establishment of public bathing places in the city. Other cities of the size of Washington have such public baths established, where those who can not afford bathing facilities at their homes may obtain a bath, either free or at a minimum cost.

STREET LIGHTING.

The following table shows the increase and decrease in the number of street lamps during the year:

	1910	1911	Increase.	Decrease.
Mantle gas lamps.....	9,090	9,240	150	.....
Flat flame gas.....	16	.....	.....	16
Naphtha lamps.....	1,224	941	.....	283
Electric incandescent:				
25-candlepower.....	1,465	.....	.....	1,465
40-candlepower.....	726	2,429	1,703	.....
80-candlepower.....	105	223	118	.....
100-candlepower.....	4	21	17	.....
200-candlepower.....	2	2	.....	.....
4-glower Nernst.....	60	60	.....	.....
Electric arc:				
4-ampere magnetite.....	269	270	1	.....
6.6-ampere magnetite.....	.....	8	8	.....
6.6-ampere series inclosed.....	676	652	.....	24
5-ampere multiple.....	524	537	13	.....
Street-designation lamps:				
Gas.....	499	492	.....	7
Electric.....	29	30	1	.....
Total.....	14,689	14,905	2,011	1,795

Net increase, 216.

During the year these lamps were lighted under contract, but the District appropriation act for the fiscal year 1912, which became effective July 1, 1911, made many important changes in the street-lighting system, placing the duty of lighting upon the public-utility corporations and fixing the rates.

The subject of rates was carefully investigated by the commissioners, and those adopted for the next fiscal year involve a substantial reduction in price.

In the case of electric arc and incandescent lamps, these new rates were made effective from the date of the passage of the act, March 2, 1911, and in the case of gas lamps east of Rock Creek, supplied with gas by the Washington Gas Light Co., a reduction of 58 cents per lamp per annum was made to begin January 1, 1911, and to remain in force until the expiration of the present contract, June 30, 1912, and in the case of gas lamps west of Rock Creek supplied with gas by the Georgetown Gaslight Co., a similar reduction was made to begin August 1, 1911. These reductions were accomplished in conferences between the gaslight companies and the commissioners. The new rates fixed for gas lighting by the appropriation act take effect after the expiration of these contracts. New rates were also fixed by law for electric street lighting, which involved a considerable reduction over the prices formerly paid under contract. The legislation also combined the two appropriations for gas lighting and for electric lighting into one appropriation embracing all forms of such lighting, and gave the commissioners authority to adopt new forms of lighting at rates advantageous to the District. At the same time the hours for lighting gas and naphtha lamps were increased, to become effective after the expiration of contracts for such lighting; that is, on July 1, 1912.

A considerable saving in the appropriation for street lighting was effected by the discontinuance of a number of lamps which had been erected on county roads, where the extent of improvements and the

amount of travel were not sufficient to justify their retention; 225 incandescent electric lamps, 145 naphtha lamps, and 65 gas lamps were discontinued, effecting an annual saving of \$9,158.

After a number of experiments with incandescent electric lamps, with the object of ascertaining the kind of lamp best adapted to the tree-lined streets of the city, a new form of lamp was adopted, consisting of a 100-watt, 80-candlepower series tungsten lamp. These lamps have been placed on Sixteenth Street, from H to U Streets, a distance of 1 mile, and on this same street from U Street to the Piney Branch Bridge, a distance of $2\frac{1}{2}$ miles, 50-watt, 40-candlepower series tungsten lamps have been installed. The posts were placed on both sides of the street about 60 feet apart. There is but one lamp to each post, placed in a pendant position inside of a 15-inch globe. On street corners blown street designations with red letters on a white ground have been set in an open frame so that the downward light from the globe illuminates them at nighttime. This form of lighting has been found very effective for resident streets, and its use will be extended.

ELECTRIC-LIGHTING SETTLEMENT.

The appropriation act for the fiscal year 1912, approved March 2, 1911, contained the following provision:

The Commissioners of the District of Columbia are empowered to effect a settlement for arc lighting under the existing contract with the Potomac Electric Power Company from the date of said contract to the date of approval of this act, and report the same to Congress.

In pursuance with this provision, the commissioners entered into an agreement with the Potomac Electric Power Co. under the then existing contract, dated October 30, 1909, as follows:

That for each arc light furnished, lighted, and maintained from the date of the contract until March 2, 1911, the rate shall be \$80 per annum; and a settlement on this basis is hereby made for the period between the date of the contract and March 2, 1911, to be concluded on the date of the expiration of the first regular session of the Sixty-second Congress, provided that Congress does not by legislation prior to the adjournment of said session provide for other terms of settlement.

And the parties of the first part agree to pay to the party of the second part immediately for the period above stated for services rendered at the rate of \$80 per lamp per annum furnished, lighted, and maintained, said payment to take into consideration the payments previously made under the contract, and the party of the second part agrees in consideration of the above payment that should Congress (before the close of its next regular session) so order, they, the party of the second part, will return to the Commissioners of the District of Columbia such proportion of the sum total received hereunder as may be legislatively directed, and the party of the second part further agrees that such sum may be deducted from any payments due or to become due to said Potomac Electric Power Co.

Under this agreement a settlement was reached with the company on August 19, 1911. The sum of \$7,348.03 was deducted from moneys due the company, which had been withheld, representing the difference between the \$85 rate for arc lights provided for in the contract, and the \$80 rate arrived at under the agreement. This deduction was for the period from October 30, 1909, the date of the contract, to October 31, 1910, inclusive, and it took into account deductions provided for in the contract for outages; that is, the period during which the full number of hours' service of the lamps was not given by the contractor. The adjustment of these outages was necessary, as they were based on the rate paid per lamp.

For the period from October 31, 1910, to March 2, 1911, the date of the approval of the District appropriation act for the fiscal year 1912, the company was paid only the lower rate of \$80 per lamp per annum as per agreement.

Therefore the total deduction made under the contract at the rate of \$80 per lamp per annum, from the date of the contract, October 30, 1909, to the passage of the act above referred to, March 2, 1911, and the saving to the District of Columbia through the terms of the settlement, was as follows:

By paying \$80 instead of \$85 per lamp per annum for the period Oct. 30, 1909, the date of the contract, to Nov. 1, 1910.....	\$7,348.03
The saving by the difference in the rate paid per lamp between \$85 and \$80, from Nov. 1, 1910, to Mar. 2, 1911, inclusive.....	2,421.37
Total.....	9,769.40

As shown above, this makes a total saving for the entire period embraced in the settlement, and referred to in the provision of law above quoted of \$9,769.40.

FIRE-ALARM, TELEGRAPH AND TELEPHONE SERVICE.

Five and twenty-six one-hundredths miles of cable were installed during the year and 0.46 mile of cable withdrawn.

The total amount of cable in service at the end of the year was 109.4 miles.

Twenty-one new fire-alarm boxes were placed in service. The total number at the end of the year was 521. The number of fire alarms received and transmitted during the year was 1,296, of which 94 were false.

The total number of patrol boxes in service at the end of the year was 341.

The total number of telephone, telegraph, and electric light and trolley poles in the District of Columbia is 15,460.

GAS AND METER INSPECTION.

Under the office of the inspector of gas and meters 10,365 gas meters were tested, and the amount of fees collected was \$4,357.10. This was an increase of \$1,154.20 over the amount received during the previous year.

The legal requirement in regard to the illuminating power and purity of gas provides that the illuminating power shall equal 22 candles. The gas is supplied by two public-service corporations, the Washington Gas Light Co. and the Georgetown Gas Light Co. Tests show the gas furnished by the former gave a mean of 23.18 candlepower. On one day the tests showed the candlepower to be below the legal requirement at all three testing stations, and on 15 days it was below the standard at two stations; on 56 days it was below the standard at one station.

The illuminating power furnished by the Georgetown Gas Light Co. was shown under test to have a mean of 22.83 candles. On 51 days during the year the illuminating power fell below the legal requirement.

PERMITS.

The permits issued for various purposes, other than building permits, amounted to 23,017, an increase of 155 over the previous year. The fees paid for these permits amounted to \$15,016, a net increase of \$1,178 over the previous year.

EXAMINATION OF STEAM ENGINEERS.

The report of the board of examiners of steam engineers shows that 53 examinations were held, 191 applicants examined, and 94 were licensed and 97 rejected as incompetent.

AUTOMOBILE BOARD.

The automobile board examined 2,260 persons desiring permits to operate motor vehicles. Of this number 2,246 were granted permits, including 236 for electric vehicles, 1,663 for gasoline vehicles, 62 for steam vehicles, and 285 for motor cycles. The amounts received from fees was \$4,460. There were also issued 2,657 identification tags, the revenue received therefrom amounting to \$5,314.

PLAYGROUNDS.

The commissioners have included in their estimates for the fiscal year 1913 an item for the acquisition of an addition to the Georgetown playground. This playground was acquired in 1907 at a cost of \$27,868.25. Owing to the limited appropriation, the District was unable to obtain a playground of regular outline, and it is proposed in the item above referred to to secure additional ground in order to square off the ground already obtained, and which has been developed for playground purposes.

PARKS.

The District appropriation act for the fiscal year 1912 provided for the acquisition of two parks. The sum of \$110,000 was appropriated for the purchase or condemnation, by the commissioners, of the tract of land known as Montrose, lying immediately north of Road or R Street and east of Lovers Lane, on Georgetown Heights, containing about 16 acres. This park was purchased, and in accordance with the law authorizing its acquisition was turned over to the Chief of Engineers, United States Army, as a part of the park system of the District of Columbia under his control.

An appropriation of \$490,000 was also contained in the same act for the purchase or condemnation of Meridian Hill Park, containing about 437,000 square feet of ground, lying between Euclid Street, Columbia Avenue or Fifteenth Street, W Street or Florida Avenue, and Sixteenth Street extended. Condemnation proceedings to acquire this park were directed to be taken by the Secretary of the Interior; the commissioners understand that these proceedings have been practically completed and that the title to this land will soon be vested in the United States.

The commissioners believe that additional parks and parkways should be acquired in the District of Columbia and they recommended legislation to authorize the appointment of a commission to look into

this matter with the object of securing information and estimates upon which appropriations for parks could be based. This bill, however, failed of enactment, and until such legislation is enacted it is the intention of the commissioners to include in their annual estimates each year provision for such parks.

The commissioners, in their estimates for the fiscal year 1913, will include an item for the acquisition of a highway and park in the Klingle Ford Valley, at an estimated cost of \$190,000, and for the acquisition of Mount Hamilton Park, at an estimated cost of \$95,000.

In the Klingle Ford Valley it is proposed to condemn about 28.5 acres of land lying on both sides of Connecticut Avenue along Klingle Road, from Woodley to Rock Creek Park. The land proposed to be taken consists of some of the most desirable land in the District of Columbia available for park purposes. It is covered with a magnificent growth of trees of great age, and will make a most picturesque and beautiful addition to the park system. Unless the land is acquired at an early date, improvements which are rapidly being made in this vicinity will require that it be graded for building purposes, and then this beautiful park area will become a dump until it is filled sufficiently to make it available for sale as building lots. This would lose to the District of Columbia a most beautiful natural park, which could never be duplicated in this vicinity. This acquisition is more essential than any other land purchase now contemplated in the District of Columbia, as Klingle Ford Valley affords the only convenient entrance to the park system from a large portion of the District, and future generations may rightly condemn the present one if it permits the valley to be lost to public use.

Mount Hamilton Park, as proposed, is located on the Bladensburg Road NE. and contains 81 acres. It is estimated that an appropriation of \$95,000 will be necessary to acquire the land. This park is also one of the chain of parks recommended by the McMillan Park Commission. There is at present no park in the northeastern portion of the District, and unless land is speedily acquired in this locality for park purposes, the development of property is such that its price will be prohibitive. This tract is splendidly adapted for park purposes, being a wooded elevation lying 240 feet above the river and affording magnificent views of the city and surrounding territory.

The acquisition of these parks will be of general public benefit, and also be a particular benefit to the adjacent neighborhood. In each case the commissioners have recommended that not less than one-quarter of the cost of obtaining the parks should be assessed on abutting and surrounding property as benefits, the other three-fourths to be borne out of general appropriations. This practice of assessing one-quarter of the cost against property benefited, the commissioners believe should be adopted in obtaining all future parks for the District of Columbia.

The commissioners will also give consideration in their estimates for the fiscal year 1913 to the acquisition of land for the following parks:

Fort Davis and Fort Dupont Park and connecting highways, in the eastern section of the District; Piney Branch Valley Park and highway, from Sixteenth Street to Georgia Avenue, and a park highway along Rock Creek drive and Lovers Lane to connect Montrose Park with Rock Creek Park.

ROCK CREEK PARK.

The appropriation for the care and maintenance of the park during the year was \$17,500. This was used in building a shelter; oiling roads; constructing three bridges, two on Beach Drive and one on Military Road; in the care and maintenance of roads and bridle paths; and in clearing.

For the fiscal year 1912, \$20,000 was appropriated, and this will be expended in grading Beach Driveway above the Military Road and macadamizing it as far as funds will permit, so as to allow better access to the north end of the park, and to widen Beach Driveway at the bridge near Pierce's mill. A portion of the funds will also be used in oiling roads and in their general upkeep, and also in general care and improvement of the park.

The commissioners will include in their estimates for the fiscal year 1913 the sum of \$30,000, the larger portion of which will be used in continuing the work on Beach Driveway in the upper end of the park.

The commissioners believe that some means should be adopted to make this park more accessible to the general public. Recently, application was made by a local automobile company for permission to operate a specially constructed vehicle through the park and through the Zoological Park, charging therefor a minimum fare, the route covering points of interest in the park. Consideration was given to the matter by the board of control of the park, and it is hoped that arrangements will soon be made to provide for this automobile service. If this is successfully established, that part of the community who can not afford to hire vehicles or automobiles to visit the park may be given a cheap means of transportation until such time as more adequate facilities are furnished.

WORKHOUSE, OCCOQUAN.

In the District appropriation act for the fiscal year 1910 the commissioners were authorized to purchase two tracts of land widely separated, of not less than 1,000 acres each, in the State of Maryland or the State of Virginia, one tract to be used for a workhouse of sufficient capacity to accommodate at least 500 prisoners and the other to be used as a reformatory with sufficient capacity to accommodate at least 1,000 inmates. They were further authorized to build temporary structures on each tract and to appoint a commission whose duty it should be to select an architect to prepare plans for permanent buildings on said tracts. An appropriation of \$100,000 was made for the purpose.

The commissioners after due advertisement for sites selected as a site for a workhouse a tract of land at Occoquan, Fairfax County, Va., containing 1,154 acres. This tract was condemned under authority contained in the urgent deficiency bill approved August 5, 1909, under the direction of the Attorney General of the United States. The price paid was \$28,648.78.

The commissioners selected as a site for a reformatory a tract of land containing 1,500 acres in Fairfax County, State of Virginia, known as Belvoir, or White House, and under condemnation proceedings instituted by the Attorney General of the United States, under

the authority above mentioned, they condemned this tract, paying therefor the sum of \$33,100.

Considerable opposition was raised to the establishment of the reformatory site on the tract purchased for it, which was about 6 miles by road from Mount Vernon, and heeding this opposition the following item was placed in the District appropriation act for the fiscal year 1912:

That no part of any appropriation contained in this act, or of any appropriation heretofore made, shall be expended for any purpose whatsoever for a reformatory or asylum, or workhouse in the State of Virginia, or Maryland, within a radius of ten miles of Mount Vernon, except the one now located at Occoquan, Virginia.

CONSTRUCTION OF TEMPORARY BUILDINGS.

After careful consideration by the commissioners and by the commission appointed by them to employ an architect for the preparation of plans for permanent buildings at the workhouse site at Occoquan, it was decided to be inadvisable to construct the usual type of prison or workhouse structure in concrete or masonry, but that frame buildings, very light, well ventilated, and sanitary, would serve at once as the temporary structures named in the act and for permanent use.

In May, 1910, tents were put up and a stockade erected on the banks of Occoquan Creek within the limits of the site purchased. Prisoners were sent down in June.

A sawmill was purchased and set up, clearing of ground begun, and the erection of the buildings on a high elevation near the center of the tract was inaugurated, most of the labor employed being that of the prisoners. By December 15, 1910, most of the buildings for male prisoners were completed and occupied. On April 1, 1911, quarters of the same type for female prisoners were started and were ready for occupancy on July 1, three months later.

Roads were built and an excellent water supply, together with a filtration plant, was provided, as were also an electric-light plant, an ice plant, and a brickmaking plant. Fire protection and sewerage systems were installed and a quarry opened up. Barges were procured for water transportation and several thousand tons of manure have been barged to the site from the District of Columbia for the improvement of the soil.

A number of buildings remain to be constructed, including a barn and some outbuildings for the farm.

At the request of the Board of Charities the operations at Occoquan have been carried on by the commissioners directly, through the Engineer Commissioner and his subordinates, including especially Capts. Kelly and Markham, the municipal architect, the superintendent of the water department, the electrical engineer, and others.

Expenditures for construction work amounted to \$103,585.12. The buildings constructed by the prisoners cost about 3 cents per cubic foot. They are equipped with electric light, heated by steam, provided with hot and cold water and sanitary plumbing.

The buildings are of the simplest possible type, long, and running north and south so that the sun may reach one side of the buildings or the other during most of the day. A large part of the sides are glass, which can be thrown open during the warmer weather, so that during most of the year the prisoners, in effect, sleep out of doors,

as they would do in a sanitarium for the tuberculous. All of the buildings are kept as white as whitewash can make them and in an absolutely sweet and wholesome condition. From records kept it is apparent that those who pass through this institution come out in very much improved physical condition and hardened to work.

The luxuries provided for the prisoners are inexpensive, consisting of plenty of sunshine, fresh air, work, and cleanliness. These luxuries do not tempt men to break into jail, are not costly to the community, but are reforming and improving influences.

The brickmaking plant, with a capacity of 40,000 bricks per day, the stone quarry, with a capacity of several hundred cubic yards per day, and farm operations, together with the addition, if necessary, of some other industry, ought to make this plant, within two or three years, self-supporting or better than that.

The workhouse site lies within a mile and a half of the railroad at Lorton, Va., and along the navigable water of Occoquan Creek.

REFORMATORY.

Owing to the prohibition above referred to against the use of any appropriation upon the reformatory site, no work has been done on this site and no money expended. Either this prohibition will have to be removed by legislation or a new site for a reformatory obtained.

ANACOSTIA RIVER AND FLATS.

The District appropriation act for the fiscal year 1912 contained an appropriation of \$100,000 toward the reclamation and development of the Anacostia River and Flats, from the Anacostia Bridge northeast to the District line, to be expended under the supervision of the Chief of Engineers, United States Army, upon plans to be prepared under the direction of and to be approved by a board of Engineers to consist of the Engineer Commissioner of the District of Columbia, the officer in charge of public buildings and grounds, and the Engineer officer in charge of the improvement of the Potomac River. This board is at work on plans for the improvement, and the work will probably be begun during the present fiscal year. An additional appropriation of \$100,000 will be asked in the estimates of the commissioners for the fiscal year 1913 to continue the work of improvement.

Appropriations have already been made, and the work has been in progress for several years, in dredging and reclaiming the flats along that portion of the Anacostia River from the Potomac River to the Anacostia Bridge. This work is being done by the United States under the appropriation for river and harbor improvements.

In the last annual report of the commissioners attention was invited to a report made by Hugh T. Taggart, special counsel to investigate the title of the United States to land along the Anacostia River, which report was printed as Senate Document No. 462, Sixty-first Congress, second session. This report applied to the portion of the river not included in the immediate frontage of the city of Washington, and the conclusions reached by Mr. Taggart were as follows:

1. That the United States, under the Constitution and the cession from Maryland, is vested, as sovereign, with absolute title and dominion in and over the space between high-water mark on each side of the Anacostia River, and comprising the shores and bed of the stream.

2. That the United States holds such title and dominion in trust for the public purposes of navigation and fishery and for such other purposes as may conduce to the general welfare of the people, as to which Congress, as the representative of the people is the sole judge.

3. That as against the United States in the execution of such trusts, riparian owners are invested with no rights.

4. That so long as the Government confines its operations in any scheme of improvement to the space aforesaid it incurs no liability under the fifth amendment to the Constitution, which requires that "private property shall not be taken for public use without just compensation," and that land reclaimed through such improvement will belong absolutely to the United States.

The above statement applies to that portion of the river not included in the immediate frontage of the city of Washington upon it. The special features of that frontage require separate consideration.

Since then Mr. Taggart has made a report on the frontage of the city of Washington, which was printed as Senate Document No. 19, Sixty-second Congress, first session, a synopsis of which is as follows:

1. By the cession from Maryland of territory for the permanent seat of the Government of the United States, title to and dominion over the shores, bed, and waters of the river were vested in the United States, as incident to its powers of government, as the sovereign, and held in trust for the public. Wharves or other obstructions could not be lawfully erected in the space without the authority of Congress.

2. The title of the riparian owner ended at the line of high water, where that of the United States began. The only rights to which the riparian owner was exclusively entitled by virtue of his situation were (1) the right of access to the water from his land and to his land from the water, a right which the United States were not bound to preserve for his benefit and which it might destroy in the interest of the public; and (2) the right to accretions to his land; that is, additions gradually and imperceptibly made to it. Beyond the line of high water and on the shore adjacent to his land and in the stream, the riparian owner had the same rights only as other members of the public.

The acts of Congress of 1790 and 1791 accepting the cession by Maryland, did not, in terms, authorize the laying out of the city of Washington. The commissioners, provision for whose appointment was made, were charged with the duty of defining and limiting the Federal district, under the direction of the President, and were authorized to acquire by purchase or gift such quantity of land as the President might deem proper "for the use of the United States," and to erect buildings for the accommodation of Congress, the President, and public offices of the Government.

Provision for laying out the city upon lands held in private ownership was made by deeds of conveyance of such lands, by the owners, in trust for that purpose. The city of Washington had its origin in these deeds. Under the trusts declared in them, the President was empowered to formulate the plan of a "Federal city" and it was provided that title to the streets of the city should be vested in the United States in fee simple.

The plan adopted by the President brought the city to the water's edge, and exhibited a street along the margin of the river, as the owner of which, if it had been laid out, on the lands conveyed, as contemplated by the deeds and by the plan, the United States would have become the riparian owner.

In carrying the plan into effect on the ground the authority of the commissioners was confined to the upland. They were invested with no authority to lay out streets and squares in the Anacostia River.

The acts of Congress of 1790 and 1791 gave them no power to appropriate lands the title to which was in the United States, and the deeds in trust did not and could not confer such power upon them.

The State of Maryland, after the cession, had no power or jurisdiction to appropriate or provide for the appropriation of the soil of the river for wharfing or other purposes. Congress only could exercise that power. So much of the Maryland act of 1791 as gave the commissioners authority to license the building of wharves in the waters of the Potomac and Anacostia rivers was, therefore, ultra vires, and the wharfing regulations, issued by the commissioners and based upon it, were void.

The commissioners disregarded the plan adopted by the President and its principles in laying out the city along the shore of the Anacostia River. The city as it should have been laid out along the river is shown on Exhibit No. 1, being a section of the plan adopted by the President; and the city as it was actually laid out along the river by the commissioners is shown on Exhibit No. 2, being a section of a plan, based on returns of surveys, prepared in 1797 in the commissioners' office.

The commissioners did not lay out the street along the margin of the river, as called for by the plan, thus depriving the United States, so far as it was in their power to do so, of the riparian ownership which it was intended by the plan that it should possess.

They laid out squares, bounded on all sides by streets, partly on the upland bordering on the river, and partly on land under the waters of the river, which belonged to the United States.

They laid out squares, bounded on all sides by streets and wholly on land under said waters, which belonged to the United States.

They laid out squares, with boundaries on the sides, which projected indefinitely into the waters of the river and apparently intended to extend to the navigable channel.

And, although title to such submerged land was absolute in the United States, they subjected it to the provision of the deeds for "a fair and equal division" between themselves and the original proprietors of the upland.

They permitted and authorized the erection of wharves and buildings in the waters of the river.

These acts were done without authority from Congress, and they afford no valid foundation for claims of title to the submerged land by private persons as against the United States.

The commissioners were arbitrary and inconsistent in their rulings as to what constituted "water property," although without authority whatever in the matter. Lots situated in a particular manner with respect to the water were held to be entitled to the privilege of wharfing, while other lots, similarly situated, were held not to be so entitled.

The confusion and uncertainty as to rights and titles along the river front of the city on the Anacostia is due to the unauthorized acts of the commissioners.

The late corporation of the city of Washington was invested with certain powers over wharves by the first legislation of Congress on the subject. The power to license the erection of private wharves was not included in such powers, and the power was not granted to the District governments created by the acts of 1871, 1874, or 1878, and it was not vested in the District Commissioners by the act of March 3, 1899.

From the beginning of the city, therefore, there has been no private wharf on the Anacostia River having the authority of an act of Congress for its erection and maintenance.

Plenary power over the matter of public wharves was granted to the city of Washington by Congress, and under the act of 1899 is now vested in the Commissioners of the District.

SEWERS.

The total length of sewers constructed during the year was about 23 miles. The total length of sewers in the District of Columbia on June 30, 1911, was 590.62 miles; of this, 122.90 miles are main sewers and 468.53 miles are pipe sewers. The total cost of the sewerage system to June 30, 1910, was \$11,204,188.79. The cost of the sewage disposal system to June 30, 1911, was \$4,146,228.01.

SEWERAGE PUMPING STATION.

The sewerage pumping service was operated without interruption during the year, taking the sewage from substantially the entire District and delivering it to the outfall. The total quantity of sewage handled by the pumps was more than 44,300,000,000 gallons and by the storm-water pumps about 700,000,000 gallons. The amount of coal used was 8,632,900 pounds. This sewage is delivered at the outlet on the Potomac River about opposite Alexandria. The examinations of the water in the vicinity of the outlet during the year indicated that its condition was excellent.

STREAM POLLUTION.

In the last annual report of the commissioners attention was invited to the subject of the pollution of Rock Creek and the Anacostia River from sewage from towns in the State of Maryland adjacent to the

District of Columbia. The matter has since been taken up with the Maryland State Board of Health, and it is believed that its active cooperation has been secured. It is hoped that a report containing the form of legislation to be recommended to prevent this pollution in the State of Maryland and in the District of Columbia can be presented during the present fiscal year. While the methods of protecting these streams from pollution are clearly defined, the method of procedure and the form of legislation, together with the method of organization and control necessary to first construct and then operate the sewerage works beyond the limits of the District, are exceedingly difficult and complicated. It is important, however, that the matter be given consideration without further delay.

SUBURBAN SEWERS.

There are 3,000 premises in the District of Columbia without sewerage. These are in the outlying sections, and, as rapidly as funds permit, the system of suburban sewers is being extended to afford sewer facilities. In the northwest suburbs, in the county west of Rock Creek, sewers aggregating 40,000 linear feet were laid; in the county east of Rock Creek the aggregate length of sewers laid was 34,000 linear feet, and in the county east of the Anacostia River 3,000 linear feet.

WATER MAINS.

Twenty-nine miles, or 152,066 feet, of water mains of all sizes were laid during the year. This is an increase of 7 per cent over the length of mains laid during the preceding year. The total length at the end of the year was 525 miles, or 2,774,177 feet.

One hundred and fifty-seven additional fire hydrants, 8 public hydrants, 10 horse fountains, and 2 sanitary drinking fountain were erected during the year, and 7 fire hydrants, 20 public hydrants, and 3 horse fountains were abandoned, making the total number in service at the end of the year, as follows: Fire hydrants, 2,903; public hydrants, 217; sanitary drinking fountains, 6; horse fountains, 140.

There are also in service 11 shallow wells and 47 deep wells.

EXTENSION OF WATER MAINS TO SUBURBAN SECTIONS.

Under a special appropriation, authority was granted to extend a trunk water main to Congress Heights. The work was begun early in the fiscal year and practically completed to the south wall of the Government Hospital for the Insane, located on Nichols Avenue. Under the appropriation act for the fiscal year 1912 a further appropriation was made to extend this main to Benning. This main extends from the intersection of Kentucky and Potomac Avenues SE., with a 30-inch pipe to the Pennsylvania Avenue Bridge, across this bridge and in Pennsylvania Avenue extended SE. to Minnesota Avenue. From the intersection of Pennsylvania Avenue and Minnesota Avenue, the line extends along Minnesota Avenue to Good Hope Road, Fourteenth Street, W Street, and Nichols Avenue with a 20-inch pipe. The total number of feet laid under this appropriation was 19,420. The 20-inch main will be extended to Benning during the fiscal year 1912.

Under a special appropriation, a 12-inch water main was also laid in Conduit Road, between Elliott Place and Weaver Terrace NW., to serve the subdivision of Potomac Heights, and 8-inch lines were laid in the streets of that subdivision. Water mains were also laid to serve the subdivisions of American University Park, Brookland and vicinity, and the territory east of Connecticut Avenue extended.

At Fort Reno a new pumping station was completed.

WATER CONSUMPTION AND WASTE.

The mean daily consumption of water during the year was 60,380,000 gallons, which, on the basis of population of 340,000, gives a per capita consumption of 178 gallons per day.

By means of the pitometer service for the detection of waste a total underground leakage was found and stopped during the year amounting to 6,921,900 gallons per day. Over half of this leakage was due to defective service pipes. At the rate charged for water of 4 cents per 1,000 gallons the prevention of this waste resulted in the saving of \$101,059.74. The expense of operating this service was \$29,262.97. The mean total rate of consumption during the year was 60,380,000, as against 59,200,000 gallons for the fiscal year 1910, 61,200,000 for 1909, and 64,500,000 for 1908. The total pumpage of water in the year was 9,100,594,000 gallons, which is 25,217,000 gallons more than was pumped during the preceding year. The cost of operation, supplies, repairs, including coal, of the pumping service was \$37,002.83, making a total operative cost of pumping 1,000,000 gallons of water into the mains of \$4.07. This cost is 43 cents per million gallons more than in the previous year, which is principally due to the increase in the cost of coal, being 14 cents higher per ton than in the previous year.

WATER REVENUES.

The cash collections during the year amounted to \$633,453.70. This sum is an increase over the revenues of the previous year of \$33,269.34. These revenues are made up from assessments levied for water mains, water rents, sales of water-tap and stop-cock boxes, charges for water for building purposes, and sale of old material.

Water is furnished free of charge to orphan asylums, hospitals, schools, and charitable institutions, under authority of law to the extent of 14,750,750 cubic feet.

Seventy-four thousand dollars was appropriated by Congress for special projects of water-main extensions, and these together with the unexpended balance from the preceding year, etc., brought the total available funds for the year up to \$818,092. The total disbursements during the year amounted to \$730,893.58, leaving a balance to begin the fiscal year 1912 of \$87,198.42. Of the amount expended 59.2 per cent was for new work, 29.6 per cent for operation, 8.4 per cent for repairs, and 2.8 per cent for replacing old work.

WATER METERS.

Three thousand and sixty water meters were installed by the water department in private residences during the year; 124 water meters were installed by private individuals in establishments other than

private residences, making the total number of water meters installed during the year 3,184. Eighty-seven water meters were discontinued. The total number of water meters now in use is 18,961. The total number of water services is 62,215. The percentage of water services metered is 29. The average cost of installing water meters by the District of Columbia during the year was \$12.61 each, of which \$6 was the cost of the meter and \$6.61 the cost of installation. The average annual cost per meter for repairs is 22 cents. The rate charged for water on metered service is 3 cents per 100 cubic feet, with a minimum rate to all consumers of \$4.50 per annum. The average annual payment for private residences where meters were installed by the District of Columbia is \$4.76. Water rent bills are delivered to householders annually at the minimum rate of \$4.50 per annum, which allows the use of 15,000 cubic feet, or 112,200 gallons of water, and if on actual measurement the water is found to have been used in excess of this rate a bill is rendered for such excess.

On the water services which are not metered, water for domestic purposes is charged for according to stories and frontage. For premises of two stories, with a front width of 16 feet or less, the minimum rate is \$4.50 per annum; for each additional front foot or fraction thereof 30 cents is charged. For each additional story one-third of the charges as computed above is added. For business premises not metered rates vary from \$1 to \$25 per annum. Where the rate is \$25 or over a meter is required to be installed at the expense of the consumer.

During the year 1,972 additional buildings were connected with the public water system.

It is expected to install 5,000 water meters, to be paid for from current revenues, during the fiscal year 1912.

INCREASE IN WATER RATES.

As will be seen in the preceding paragraph, it is proposed to install 5,000 water meters during the fiscal year 1912. This is all that the anticipated revenues for the year will probably justify.

There are at present 45,000 unmetered water services, and the annual increase in the number of new services is estimated to be 3,000. The total number of meters estimated to be installed in six years, to complete the work of metering, is 63,000. The total estimated cost of the work is \$819,000, which will permit the installation of 10,500 meters per year, at an annual cost of installation of \$136,500. At the present time only about \$65,000 per year can be spared from the water fund for the purpose of installing meters.

The commissioners believe that the entire water service should be metered within the 6-year period above referred to, in order that the necessity for increasing the water supply by the construction of an additional aqueduct, at an estimated cost of about \$5,000,000, may be postponed for an indefinite number of years. They have, therefore, by an order dated September 30, 1911, increased the water rates, the new rates to go into effect July 1, 1912.

Under the new rates adopted the minimum payment by meters is increased from \$4.50 per year to \$5 per year, and the maximum allowance of water for the minimum rate has been decreased from 15,000 cubic feet, or 112,200 gallons, to 7,500 cubic feet, or 56,500 gallons.

All water in excess of 7,500 cubic feet is to be paid for at the rate of 4 cents per 100 cubic feet, instead of 3 cents, the present rate.

On unmetered services the flat rate is increased from \$4.50 to \$5 per annum, which is based on a premises two stories high, with a front width of 16 feet or less. For each additional front foot or fraction thereof greater than one-half 31 cents will be charged, instead of 30 cents, the prevailing rate. For each additional story, or part thereof, one-third of the charges computed as above will be added.

Under the new rates adopted water consumers will continue to receive their water at less than the cost of the service, interest and deterioration of course being included.

The new rates will remain less than those prevailing elsewhere.

The above statements indicate that no hardship will be placed upon any consumer.

Indeed, more than one-third of the consumers who now pay the minimum meter rate, to wit, \$4.50 per annum, will pay no more under the new rates, inasmuch as they do not now consume up to the new maximum allowed, namely, 7,500 cubic feet. Furthermore, after the District is metered the aggregate receipts from the present consumers may be expected to be but little, if at all, greater than they are now.

With the new rates the water department will be placed upon a businesslike basis. The metering can be accomplished in about six years.

If the metering were not done, as proposed, in the immediate future it would not be too soon now to contemplate the expenditure of millions of dollars for an additional water supply. With the meters installed no further consideration need be given to an increase of supply until the city has grown to twice its present size, for with meters the large periodical humps that occur in the use of water, particularly in cold weather, when consumers now unnecessarily open their fixtures to prevent freezing, may be expected to disappear.

Conservation should be something more than a sentiment, and the metering of the water supply publicly furnished in Washington is a very practical measure of conservation.

It is believed by the water department that the additional revenues due to the increase in rates will be \$107,000 in the first year. In the next seven years, however, this increase of the revenues will have gradually diminished to a small sum which can not be exactly estimated.

If the District of Columbia were to be presented with the meters to-day, fully equipped and installed, the commissioners would be obliged, nevertheless, to raise the rates, for the reason that with meters and at the present rates the revenues of the water department would fall off from \$60,000 to \$70,000 per annum, and there would be no money available for putting in the meters in new houses nor for replacing meters that will become worn out.

The revenues of the water department have not been sufficient to take care of deterioration, in addition to the other obligations placed upon them by law.

In a large section many of the mains are but four inches in diameter and badly choked with mud, the people having been thus supplied as a makeshift measure.

More than a million dollars could with advantage be expended in the near future in replacements.

The situation is fully explained in the following table and explanatory notes:

Data furnished by W. A. McFarland, superintendent of water department.

	I.	II.	III.	IV.	V.	VI.	VII.	VIII.	IX.	X.
First year.....	\$65,000	\$107,000	\$172,000	.....	\$172,000	.....	(\$172,000	10,500	\$136,500	
Second year....	75,000	107,000	182,000	\$15,750	166,250	\$7,245	159,005	10,500	136,500	
Third year.....	85,000	107,000	192,000	31,500	160,500	14,490	146,010	10,500	136,500	
Fourth year....	95,000	107,000	202,000	47,250	154,750	21,735	133,015	10,500	136,500	\$3,012
Fifth year.....	105,000	107,000	212,000	63,000	149,000	28,980	120,020	10,500	136,500	
Sixth year.....	115,000	107,000	222,000	78,750	143,250	36,225	107,025	10,500	136,500	
Seventh year...	125,000	107,000	232,000	94,500	137,500	43,470	94,030	3,000	39,000	55,030
Eighth year...	135,000	107,000	242,000	94,500	147,500	45,540	101,960	3,000	39,000	62,960

¹ Mean, \$139,512.

² Mean annual.

Column I.—Estimated surplus in water fund available each year with current rates, after providing for operation, repairs, and ordinary plant extensions and replacements. Includes increase due to growth of system. Number of meters in service remaining as at present.

Column II.—Estimated increase in revenue due to proposed increase in rates, if no more meters be installed.

Column III.—Sum of I and II. Estimated total surplus over ordinary expenses, with new rates, if no more meters be installed.

Column IV.—Estimated decrease in revenue due to installation of meters at rate of 10,500 per year, and consequent change from flat rate to meter basis; assumed decrease \$1.50 per meter per year.

Column V.—(Difference between III and IV.) Estimated total funds available for installation of meters on assumed basis (10,500 per year) and for payment of fixed charges (reading, repair, and depreciation) due to such installation.

Column VI.—Increase in annual expenses due to installation of meters. Cost of reading 20 cents, repairs 22 cents, depreciation 27 cents, total 69 cents per meter per year.

Column VII.—(Difference between V and VI.) Estimated amount available each year for the installation of meters, after providing for fixed charges.

Column VIII.—Number of meters to be installed each year, metering to be completed in six years.

Column IX.—Estimated cost of meter installation.

Column X.—Estimated amount available for extraordinary plant extensions and replacements after general metering is completed; 3,000 meters per year on new services assumed. The necessity for extraordinary replacements to the extent of more than \$1,000,000 is now apparent.

NOTE 1 (by Engineer commissioner).—A careful study of these data will indicate that if some one were to present us with the 45,000 meters now needed, at the present rates, our surplus, which is \$65,000, would be diminished by (45,000) × (\$1.50 + .20 + .22 + .27) = \$98,550. (See notes on columns IV and VI.) In other words, our surplus would become a deficit of \$33,550, while we would be confronted immediately with the necessity of installing 3,000 new meters and caring for extraordinary replacements.

NOTE 2 (by Engineer commissioner).—The above table is based on a most optimistic view of the situation. For example, our surplus would not have existed if we had made certain extensions this year and last to Congress Heights, Benning, and on the Conduit Road, from the funds of the water department, as is the general rule, to which we may not expect exceptions in the future.

HIGH-PRESSURE FIRE-SERVICE SYSTEM.

In the District appropriation act for the fiscal year 1912 the commissioners were directed to make an investigation as to the necessity of installing a high-pressure fire-service system in the business section of the city of Washington, and to report the results of such investigation at its next regular session.

This investigation has not yet been completed, and the results when obtained will be made the subject of a special report to Congress.

HARBOR FRONT.

The total amount received from rentals of wharves and river frontage in the District of Columbia, placed by law under the control of the commissioners, was \$16,894.25, divided as follows:

Potomac River front.....	\$14,873.00
Anacostia River front.....	438.50
James Creek Canal.....	1,582.75

The actual water frontage in the District of Columbia devoted to commerce is about 2 miles. The total available water frontage is

about 18 miles, including that set apart for parks and purposes of the United States, amounting to about 8 miles. The most important frontage is that along the Washington Channel, of which 4,675 feet, between the Arsenal and N Street south, is under the jurisdiction of the United States, and the remaining 4,600 feet, between N Street south and Fourteenth Street south, is under the jurisdiction of the commissioners. A portion of this frontage is used for municipal purposes. The police-boat wharf, fire-boat wharf, morgue, and District sand and gravel yard are located there. The balance of the frontage is under lease to private parties, the longest-term lease expiring in 1913. At the upper end of this frontage it is proposed to locate a municipal asphalt plant.

The frontage along the Anacostia River is largely undeveloped, owing to the uncertainty in the ownership of abutting land and riparian rights. Along this frontage is located the sewerage pumping station and a wharf to be used in transporting prisoners and materials between the District of Columbia and the workhouse and jail at Occoquan, Va.

Investigations are in progress with a view to settling the ownership of the land abutting on the river.

The portion of James Creek Canal from N to P Streets which is now open is under lease. This is a distance of about 1,000 feet. The canal is quite shallow and needs dredging. The question as to whether it shall be kept open as a waterway or filled is under consideration.

The wharves along the Georgetown Channel are private property, except at the foot of streets. A lease has been entered into for the foot of Thirty-third Street, and the foot of Thirtieth Street is used as a wood depot under the direction of the superintendent of weights and measures, who collects wharfage fees.

Harbor lines have recently been established along this frontage.

Consideration has been given by the commissioners to the matter of the improvement of the harbor front, and it is hoped at some future time to make definite recommendation as to such improvement.

DISTRICT BUILDING.

Several improvements were made in the District Building during the year. These included a stationary chemical fire-extinguishing apparatus and the installation of mechanical stokers for burning bituminous coal. Formerly anthracite coal was used in order to prevent smoke, but by the use of these stokers bituminous coal can be used without smoke and with a saving of 20 per cent on the fuel bill.

IMPROVED TRANSPORTATION.

Involved in the cost of municipal work is the cost of transportation. Previous to three years ago all transportation in the District service was by means of horse-drawn vehicles. As a measure of economy the commissioners have recommended and Congress has to some extent granted appropriations providing for the substitution of motor-driven vehicles for horse-drawn vehicles. Under this appropriation automobiles have been purchased for use in field work in connection with the construction and repair of county roads, the

construction of sewers, in the making of surveys of land, in the construction of municipal buildings, and in the work of the water department. Additional items for the purchase of motor-drawn vehicles have been included in the estimates of the commissioners for the next fiscal year.

In order to demonstrate the relative cost of these two means of transportation the matter was investigated in connection with the work of sewer construction. It was found that the horse-drawn vehicles required double the time per mile of travel, and consumed in travel twice as much of the time of the field party, as against the motor-driven vehicle.

Very respectfully,

CUNO H. RUDOLPH,
JOHN A. JOHNSTON,
WILLIAM V. JUDSON,

Commissioners of the District of Columbia.



REPORT OF THE OPERATIONS OF THE ENGINEER DEPARTMENT.

SURFACE DIVISION.

Capt. MARK BROOKE,

Corps of Engineers, U. S. Army, Assistant to the Engineer Commissioner, in charge.

HIGHWAYS (STREETS, ROADS, BRIDGES, ETC.).....	C. B. HUNT, <i>Engineer of Highways.</i>
Sidewalks and alleys.....	H. N. MOSS, <i>Superintendent of Streets.</i>
Construction and maintenance of county roads.....	L. R. GRABILL, <i>Superintendent of County Roads.</i>
Construction and care of bridges.....	T. J. C. BAILY, Jr., <i>Engineer of Bridges.</i>
Street and alley cleaning, collection of garbage, etc.....	J. W. PAXTON, <i>Superintendent of Street Cleaning.</i>
ASPHALTS AND CEMENTS.....	J. O. HARGROVE, <i>Inspector of Asphalts and Cements.</i>
SURVEYOR'S OFFICE (including street extensions).....	M. C. HAZEN, <i>Surveyor.</i>
TREES AND PARKING.....	TRUEMAN LANHAM, <i>Superintendent of Trees and Parking</i>
GRADE DAMAGES.....	A. L. SINCLAIR, <i>Special Assistant Counsel.</i>

REPORT OF THE ASSISTANT IN CHARGE.

OFFICE OF THE ENGINEER COMMISSIONER
OF THE DISTRICT OF COLUMBIA,
Washington, October 7, 1911.

MAJOR: I have the honor to transmit herewith annual reports, giving in detail the operations during the fiscal year ended June 30, 1911, of the surface division, the surveyor's office, including the office of street extensions, the office of the inspector of asphalts and cements, the office of superintendent of trees and parking, and the special assistant corporation counsel in charge of grade damages. In the report of the Engineer of Highways are included the reports of the superintendent of streets, the superintendent of roads, the engineer of bridges, and the superintendent of street cleaning.

Very respectfully,

MARK BROOKE,
*Captain, Corps of Engineers, U. S. Army,
Assistant to the Engineer Commissioner.*

Maj. WM. V. JUDSON,
*Corps of Engineers, U. S. Army,
Engineer Commissioner, District of Columbia.*

REPORT OF THE ENGINEER OF HIGHWAYS.

WASHINGTON, D. C., *September 13, 1911.*

SIR: I have the honor to submit the following report of the operations of the office of the engineer of highways for the fiscal year ended June 30, 1911:

The total amount of funds appropriated by Congress and deposited by corporations and others for disbursement by the surface division aggregated \$1,182,600, of which about \$200,000 was for paving sidewalks and alleys in all parts of the District; \$466,500 was for paving new roadways and repairing old roadway pavements; \$75,000 for elimination of grade crossings, \$202,000 for construction and repair of county roads,

\$98,600 for construction and repair of bridges; \$15,000 for grading streets and avenues; \$7,000 for sidewalks and curbs around Government reservations, and about \$118,500 was spent in repairing pavements disturbed by other branches of the District government, and by various corporations, and others.

Summary of work under appropriation for "Improvement and repairs" fiscal year ended June 30, 1911.

Character of work.	Streets and avenues.	County roads and suburban streets.	Repairs to asphalt pavements.	Total.
Street asphalt paving.....square yards..	16,547.59	.....	67,242.74	83,790.33
Asphalt surface.....do.....	.....	.....	116,157.20	116,157.20
Vitrified-block gutters.....do.....	1,197.84	1,402.47	9,313.22	11,913.53
Asphalt-block paving.....do.....	11,557.10	.....	.....	11,537.10
Macadam.....do.....	.....	36,387.00	.....	36,387.00
Cobble and granite gutters.....do.....	.....	9,606.22	.....	9,606.22
Ordinary grading.....cubic yards..	2,288.97	101,061.00	3,413.62	106,763.59
Macadam grading.....do.....	2,409.90	.....	.....	2,409.90
Old asphalt renewed.....do.....	.....	.....	12,463.00	12,463.00
Old cobble and granite removed.....square yards..	9,773.37	.....	.....	9,773.37
Old curb removed.....linear feet..	3,700.12	.....	20,787.74	24,487.86
Curb set.....do.....	7,172.91	3,365.85	23,215.60	33,754.36
Curb reset.....do.....	6,410.17	382.70	9,355.73	16,148.60

¹ 198.8 feet repairs to county roads included; 9,365 square yards asphalt-block pavement around Union Station Plaza in addition.

The following is a list of tables appended to the report:

Table A.—Street railways in the District of Columbia, July 1, 1911.

Tables B and C.—Statement of character and extent of street pavements.

Table E.—Schedules of work on streets and avenues and county roads, and suburban streets.

Table F.—Repairs to asphalt and coal-tar pavements.

Table G.—Work done for street railway companies.

Table H.—Work done by day labor under appropriation for "Repairs to streets, avenues, and alleys."

Table I.—Regular permit work.

Table K.—Assessment work.

Table L.—Replacing and repairing sidewalks and curbs around public reservations.

Table M.—Miscellaneous work.

Table O.—Repairs to cuts by plumbers and others.

Table P.—Grading by chain gang.

The limited appropriation for streets and avenues made the amount of new pavement laid comparatively small. The two styles of pavement which may be considered the standard in the District—sheet asphalt and asphalt block—were laid according to the specifications in use for several years.

Sheet-asphalt pavements are laid on a base of Portland cement, concrete 6 inches thick, with a binder coat $1\frac{1}{2}$ inches thick, and asphalt wearing surface $1\frac{1}{2}$ inches thick after compression in both cases.

Asphalt-block pavements are laid on a base of bank gravel 5 inches thick and 2 inches of sharp sand for bedding the blocks. Contract prices were: \$1.77 for sheet asphalt and \$1.65 for asphalt block.

Special appropriation was made for removing granite-block pavements on Market Square and D Street NW., between Seventh and Eighth Streets, and replacing with asphalt. The old cobble pavement on Maine Avenue was removed and replaced with asphalt block. The old material was available for paving gutters on macadam roadways in more remote parts of the District.

The increased appropriation for repairs to streets allowed the execution of a larger amount of repairs to asphalt and coal-tar pavements than ever before, which shows in the improved condition of the streets. The amount of repairs was 192,709 square yards, as against 105,126 in 1910.

Many of the pavements repaired were among the oldest in the city, some of these having been laid prior to 1878, and had never before been resurfaced. The average age of pavements repaired by resurfacing and renewal was 25.8 years.

The older pavements, especially the coal-tar pavements, were often laid without proper regard to grades and cross sections, and frequently with the use of inferior curbing, not at all in keeping with the surroundings. Notable examples of this

defect were presented in the old pavements of Thomas Circle and Washington Circle, where careful studies and laborious field work were required to secure proper surface drainage, resulting in new pavements in both cases.

The roadway of Washington Circle was reduced from 56 to 45 feet, adding 11 feet to the parking in front of the surrounding dwellings, and greatly improving the appearance of the circle.

Table F, showing in detail the amount of work done under the appropriation for repairs to asphalt pavements, separates the total into that required for actual repair of roadway, and that for new gutters and curb work. These latter are considered betterments and improvements, outside of actual repairs to roadway. Work of resurfacing by heater method has been continued and a much larger amount done than during the previous year, the work previously done appearing so well as to warrant the continuance. The average cost of resurfacing by this method was about 68 cents per square yard. The average age of pavements so treated was 26.4 years.

Alley pavements of asphalt block 11,800 square yards, and vitrified block 21,692 square yards; in all, 33,492 square yards, were laid by day labor.

Sidewalk pavements of cement amounting to 63,945 square yards have been laid by contract at prices of from 97½ cents to \$1.19, according to location. One-half the cost of both alley and sidewalk pavements has been assessed against abutting property. A considerable part of the sidewalk pavements have been laid in the rapidly improving suburbs. There is still room for improvement in the walks in the central part of the city, many of which are of brick or inferior material, badly worn, and very rough.

I renew my recommendation of past years for the progressive removal of all grade crossings in the District, and authority should be given especially for the removal of the grade crossing at Benning as soon as possible.

The street-cleaning department was assigned to the engineer of highways January 25, 1911.

The amount appropriated for this department was:

For sprinkling, sweeping, and cleaning streets, avenues, alleys, and suburban streets.....	\$250,000
For cleaning snow and ice from streets, crosswalks, and gutters.....	10,000
For disposal of city refuse.....	179,945

439,945

The report of superintendent of street cleaning is respectfully transmitted herewith. I also respectfully transmit herewith the reports of the superintendent of county roads, the superintendent of streets, and the engineer of bridges.

Very respectfully,

C. B. HUNT,
Engineer of Highways.

Capt. MARK BROOKE,
Corps of Engineers, U. S. Army,
Assistant to Engineer Commissioner, District of Columbia.

STATEMENT OF PER DIEM EMPLOYEES.

Statement showing number of employees temporarily required in connection with street, road, and bridge construction and repairs, and appropriations and deposits from which paid, during the fiscal year ended June 30, 1911.

Designation.	Number.	Rate.
Assistant engineer.....	1	\$5.
Computers.....	1	\$4.50.
Draftsmen.....	2	1 at \$3.50 and 1 at \$3.75.
Transitmen.....	3	1 at \$4, 1 at \$3.50, 1 at \$4.
Inspectors.....	20	1 at \$8, 1 at \$5, 16 at \$4, 1 at \$3, 1 at \$2.
Copyists.....	4	1 at \$4, 2 at \$3.25, 1 at \$2.50.

Appropriation from which paid.

Improvements and repairs.....	\$18,523.28
Elimination of grade crossings.....	6,241.50
Strengthening Calvert Street Bridge.....	741.75
Cedar Street Subway.....	680.00
Total.....	26,186.53

REPORT OF THE SUPERINTENDENT OF STREETS.

WASHINGTON, D. C., *September 12, 1911.*

SIR: I have the honor to submit herewith the annual report of the operations under my charge for the fiscal year ended June 30, 1911. Table H is a summary of work done by day labor under the appropriation for "Current repairs to streets, avenues, and alleys." The cost of such work was \$37,557.99, including the repairs to 3,688 dangerous holes. One-third of the amount was sidewalk and alley work and the other two-thirds repairs to street roadways.

Table I is a list of work done under the permit system, wherein property owners requested the improvement and paid one-half the cost, the District paying the other half. The total cost of this work was \$26,425.52.

Table K is a list of work done under the assessment system. One-half the cost of such work is charged against the abutting property. The total cost was \$162,311.

Table L is a list of work paid for from the appropriation for "Replacing sidewalks and curbs around public reservations." The amount expended under this class of work was \$5,254.94.

Very respectfully,

H. N. Moss,
Superintendent of Streets.

The ENGINEER OF HIGHWAYS.

REPORT OF THE SUPERINTENDENT OF COUNTY ROADS.

WASHINGTON, D. C., *September 18, 1911.*

SIR: I have the honor to submit herewith a report of the work done upon construction and repair of suburban streets and roads during the fiscal year ended June 30, 1911.

Repairs to county roads, appropriation 1911.

Job No.	Location.	Cost.
SECTION 1.		
4017	Chesapeake Street, west of Wisconsin Avenue.....	\$53.50
4029	Wisconsin Avenue, from Ellicott Street to District line.....	6,609.02
4052	Alley, square 1864.....	33.87
4067	Wisconsin Avenue, from Harrison Street to District line, macadam (asphalt binder).....	803.53
4068	Canal Road, from Thirty-sixth Street to railroad crossing (oil).....	687.40
4073	Wisconsin Avenue, from Thirty-seventh to Ellicott Streets (oil).....	561.57
4074	Belt Road and Western Avenue, from Wisconsin Avenue to Forty-first Street (oil).....	165.25
4079	Connecticut Avenue, from Cathedral Avenue to Chevy Chase Circle (oil).....	1,730.08
4085	Massachusetts Avenue NW., between Rock Creek and Wisconsin Avenue (repair and oil).....	975.08
4112	Thirty-fourth Street, from Woodley Lane to Newark Street (walks).....	560.31
4126	Belt Road and Garrison Street.....	88.43
4127	Wisconsin Avenue, from Ellicott to Harrison Streets, Forty-first Street, from Livingston Street to Western Avenue (oil), and Western Avenue, from Forty-first Street to Chevy Chase Circle.....	115.04
4135	Tilden Street.....	123.25
4136	Pleasant Drive.....	478.32
4137	Lovers Lane.....	122.12
4138	Belt Road, north of Garrison Street.....	32.13
4142	Harper and Voight (cinders).....	17.50
4143	Massachusetts Avenue, from Idaho to Nebraska Avenues.....	381.39
4155	University Park.....	279.38
4156	Klingie Road.....	60.50
4178	Grant Road, from Chesapeake Street to Connecticut Avenue.....	347.49
4018	Twenty-third Street, north of Calvert street (repair).....	13.75
4026	A. C. Beach, proposal 8 cubic yards stone.....	8.00
4201	Broad Branch Road.....	414.87
4203	Canal Road, between Baltimore & Ohio R. R. crossing and Chain Bridge.....	718.14

Repairs to county roads, appropriation 1911—Continued.

Job No.	Location.	Cost.
SECTION 1—continued.		
4210	Twenty-eighth Street, south of Cathedral Avenue (grade).....	\$369.25
4243	Pierce Mill Road.....	496.99
4244	Proposal W. T. Weaver (stone).....	27.75
4292	New Cut Road (repair).....	95.25
4249	Little Falls Road.....	68.12
4286	Connecticut Avenue, from Cathedral Avenue to Chevy Chase (repairs).....	2,195.59
4287	Canal Road, from Thirty-sixth Street to Baltimore & Ohio R. R. crossing (repair).....	560.80
4010	Sprinkling roads.....	2,948.31
4326	Wisconsin Avenue and Belt Road (oil).....	69.68
4339	H. P. Gilbert (stone).....	75.00
4202	Thirty-third Street NW., north of Rittenhouse.....	101.75
4288	Wisconsin Avenue, from Thirty-seventh Street to District line (repair and oil).....	1,024.00
4313	Canal Road (oil).....	402.93
4314	Connecticut Avenue (oil).....	2,090.18
	Dangerous holes and minor repairs.....	25,905.52
	Total.....	9,851.41
		35,756.93
SECTION 2.		
4006	North side Oakdale Place, across Third Street.....	18.50
4007	Eighteenth Street NW., between Ontario Road and Summit Place.....	112.00
4008	Ontario Road, between Eighteenth Street and Ontario Place.....	118.12
4020	Sixteenth Street extended, between Oak and Kennedy Streets (repair).....	1,595.85
4032	Georgia Avenue, from Park Road to Allison, and New Hampshire Avenue, from Park Road to Georgia Avenue.....	1,698.08
4036	Roadway of Connecticut Avenue Bridge (repair with Tarria X).....	1,547.88
4038	Monroe Street NW., between Eleventh and Thirteenth Streets.....	96.25
4053	Lamont Street NW., Georgia Avenue, to Sixth Street, and Sixth Street, between Keefer and Lamont Streets (repair with old material).....	318.50
4060	Harvard Street NW., between Fifth Street and Georgia Avenue.....	327.12
4064	Fifteenth and Webster Streets NW. (pipe).....	89.70
4065	Various streets (calcium chloride).....	856.16
4077	Sixteenth Street NW., from Columbia Road to Oak Street (oil).....	287.42
4082	Park Road NW., from Soldiers' Home to Fourteenth Street (oil).....	268.19
4084	Military Road, from Georgia Avenue to Twenty-seventh Street (Tavia B).....	411.70
4087	College Street, from Fourth to Sixth Streets (repairs).....	250.93
4088	Quarry Road, near entrance to Zoo Park.....	227.64
	Park Road (asphaltoline).....	445.83
4095	Klingle Road (asphaltoline).....	125.55
	Irving Street (asphaltoline).....	69.95
4096	Riggs Road (repair with gravel).....	446.06
4105	Park Road, from Seventh to Eighteenth Streets (repair).....	555.23
4113	Blagden Avenue (tarvia B).....	358.27
4120	Sixth Street, from College to Girard Street.....	110.75
4121	Intersection Blagden Avenue and Sixteenth Street (asphalt binder).....	101.40
4123	Sixth Street NW., from Trumbull to Howard Street.....	123.62
4140	Nineteenth Street, between Lamont and Park Road, and Lamont Street, between Eighteenth and Nineteenth Streets.....	239.14
4146	Park Road, north of Hobart Place; Hobart Place between Park Road and Fifth Street; Fifth Street, from Hobart Place to Harvard Street.....	233.94
4147	Michigan Avenue NE., First to North Capitol Street.....	213.00
4148	Irving Street NW., at Warder Street.....	46.50
4157	Fairmont Street NW., Sherman Avenue to Eleventh Street.....	237.25
4160	W Street NW., from Flagler Place to Second Street.....	89.94
4177	North half of Farragut Street (school site).....	67.28
4021	Sherman Avenue, between Barry Place and Harvard Street.....	153.65
4022	Georgia Avenue, from Park Road to Allison Street.....	111.64
4028	Rock Creek Church Road, between Georgia Avenue and Harewood Road.....	911.13
4062	Second and N Streets NE. (boiler shed).....	146.75
4144	Piney Branch Road, between Georgia Avenue and Cedar Street.....	212.50
4158	Lamont Street NW., from Georgia Avenue to Sherman Avenue.....	378.75
4161	Champlain Avenue, between Florida Avenue and Kalorama Road.....	138.56
4179	Intersection of Seventeenth and Lamont Streets.....	40.78
4019	Mt. Pleasant Street, between Columbia and Park Roads.....	109.76
4083	Streets in Takoma Park (repair).....	222.49
4094	Streets in Petworth (repair).....	585.33
4095	Streets in Brightwood Park (repair).....	244.00
4099	Clifton Street, between Eleventh and Thirteenth Streets.....	81.50
4124	Warder Street, from Quebec Place to Rock Creek Church Road.....	383.62
4212	Park Road from Eighteenth to Twentieth Street.....	79.18
4214	Fourteenth Street, from Madison to A Road.....	232.75
4216	Irving Street, between Eleventh and Thirteenth Streets.....	37.25
4217	Parkwood Place NW., between Fourteenth and Holmead Streets.....	188.06
4218	Nineteenth Street, north of Kalorama Road, and Belmont Street, west of Nineteenth.....	343.49
4221	Rock Creek Church Road, between Harewood and Bates Roads.....	218.50
4240	Clifton Street, west of University Place.....	131.87
4241	Meridian Street, east of Center Street.....	35.12

Repairs to county roads, appropriation 1911—Continued.

Job No.	Location.	Cost.
SECTION 2—continued.		
4242	Harvard Street, between Georgia Avenue and Fifth Street.....	\$235.44
4251	Twentieth Street, from Biltmore to Belmont Streets.....	72.00
4261	Kenyon Street, west of Eighteenth Street.....	201.68
4274	Perry Place, between Holmead and Fourteenth Street.....	218.04
4276	Holmead Place, between Otis Street and Spring Road.....	307.51
4277	Barry Place, between Sherman Avenue and Georgia Avenue.....	140.25
4291	Newton Street, east of Georgia Avenue.....	128.89
4302	Blagden Avenue.....	71.31
4040	Park Road, between Seventeenth and Eighteenth Streets (vitrified gutters).....	296.58
4063	Kansas and Georgia Avenues (build pipe trap).....	18.24
4159	North Capitol Street, between V Street and Michigan Avenue.....	130.25
4219	Taylor Street NW., between Seventh and Eighth Streets.....	344.37
4010	Sprinkling roads.....	4,902.00
4049	East side Fourteenth Street, between Otis Street and Parkwood Place (gutters).....	122.53
4141	East side Brown Street, between Newton and Meridian Streets (gutters).....	91.38
4213	Lamont Street, between Eighteenth and Nineteenth Streets (repair).....	120.94
4269	East side Fourteenth Street, between Parkwood Place and Perry Place (gutter).....	170.83
4320	Ninth Street NW., between Florida Avenue and Barry Place.....	38.50
4324	Thirteenth Street, between Otis Street and Spring Road.....	120.69
4325	Various streets (liquid asphalt).....	106.50
4329	Fourteenth Street, Park Road to Spring Road.....	813.38
4331	Various streets (oil).....	166.50
4340	Joseph Swift (gravel).....	93.03
4229	Approaches to Connecticut Avenue Bridge.....	154.82
4230	Approaches to Sixteenth Street Bridge, over Piney Branch.....	701.79
4316	Georgia Avenue NW. (oil).....	1,440.45
4351	Rock Creek Church Road (oil).....	172.16
4231	Broad Branch Road (oil).....	77.39
4231	Sixteenth Street, from Oak to Kennedy (tarvia B).....	884.09
4315	Fourteenth Street NW., from Spring Road to Kennedy (tarvia B).....	628.48
	Dangerous holes and minor repairs.....	29,649.45
	Total.....	11,477.57
		41,127.02
SECTION 3.		
4011	Channing Street NE., Twenty-second to Twenty-fourth Streets.....	12.00
4014	Seaton Place, between North Capitol and Lincoln Road.....	358.05
4023	Central Avenue NE., Fourth to Seventh Streets.....	149.75
4122	Twentieth and Girard Streets NE.....	61.00
4170	Bunker Hill Road, near the District line.....	123.00
4104	Mount Olivet Street NE., between Capitol and Corcoran Streets.....	102.75
4169	Rhode Island Avenue, Twentieth to Twenty-fourth Streets (South Dakota Avenue).....	140.87
4024	Streets in Brookland (repair).....	878.42
4047	Sargeant Road (repair).....	252.00
4192	Bladensburg Road near M Street.....	642.62
4193	Nineteenth Street NE., Bennings Road to Gales Street.....	551.25
4232	W Street NW., between North Capitol and First Streets.....	597.00
4230	Property Yard, Second and N Streets NE. (oil plant).....	126.88
4262	Brentwood Road and Rhode Island Avenue NE.....	172.50
4025	Harewood Road (repair).....	332.00
4097	Streets in Ivy City.....	848.94
4300	Monroe Street NE., between Twelfth and Thirteenth Streets.....	115.00
4010	Sprinkling roads.....	3,104.00
4285	Rhode Island Avenue, Fourth to Twentieth Streets.....	140.75
4290	Levis Street NE., Fifteenth Street to Bladensburg Road.....	146.00
	Dangerous holes and minor repairs.....	8,854.78
	Total.....	6,850.00
		15,704.78
SECTION 4.		
4013	Central Avenue, from Benning Road to District line.....	281.72
4015	Giesboro Road.....	687.54
4056	Various streets in Anacostia.....	429.76
4080	Benning and Kenilworth Roads (oil).....	590.31
4063	Nichols Avenue SE., from Howard Street to end of macadam pavement (oil).....	801.96
4125	Fifty-sixth and F Streets, F Street, Fifty-fifth to G, to St. Catharines.....	541.75
4145	Fifty-seventh Street NE., south of E Street.....	22.12
4086	Pennsylvania Avenue SE., between Branch and Minnesota Avenues.....	348.24
4220	Magazine Road.....	84.25
4222	Sixth Street SE., south of Alabama Avenue (gravel).....	133.70
4260	Bennings Road, east of Woodlawn Cemetery.....	469.70
4271	Bowen Road (gravel).....	275.80
4272	Livingston Road.....	87.70

Repairs to county roads, appropriation 1911—Continued.

Job No.	Location.	Cost.
SECTION 4—continued.		
4010	Sprinkling roads.....	\$1,712.00
4311	Bennings and Kenilworth Roads (oil).....	590.03
4342	Pennsylvania Avenue SE., between Minnesota Avenue and Bennings road.....	193.60
4162	Bennings Road, between Oklahoma Avenue and Philadelphia, Wilmington & Baltimore R.R.....	3,642.89
		10,893.07
	Dangerous holes and minor repairs.....	9,538.87
	Total.....	20,431.94

RECAPITULATION.

Section 1.....	\$35,756.93
Section 2.....	41,127.02
Section 3.....	15,704.78
Section 4.....	20,431.94
Total.....	113,020.67
Miscellaneous.....	712.37
Blacksmith work.....	399.90
Traveling expenses.....	253.18
Coal.....	480.80
Hire steam roller.....	102.00
Road roller (purchase).....	1,125.00
Repairing boiler.....	55.00
Hauling stone.....	6,066.31
Terra cotta pipe.....	54.17
Oiling wagon (purchase).....	375.00
Coal oil, etc.....	101.34
Repairs to water wagons, etc.....	554.11
Tools.....	1,104.31
Repairs to road scraper.....	25.69
Soda ash.....	54.00
Stone and screenings not included above.....	559.15
Fittings for oil plant.....	171.88
Repairs to steam roller.....	42.12
Printing proposals.....	18.12
Lumber.....	33.38
Stone breaking.....	2.87
Hardware.....	59.68
	125,371.05
Balance available June 30, 1911.....	14,628.95
Amount of appropriation (1911, \$120,000; 1911-12, \$20,000).....	140,000.00

The use of oil for dust laying and road preservation was considerably extended, and five steel tanks, each containing 15,000 gallons of oil for road use, were erected at various railroad points. Oils of several kinds were used, including a considerable amount of emulsified oil. The latter is found better adapted to residence streets where there is much foot traffic, on account of being less adhesive to the feet when first applied. It is also less expensive. The heavier oils are found to be best adapted to roads with a preponderance of automobile travel; and the lighter oils more frequently applied to roads having more heavy hauling and to roads with very loose surface. The selection of an oil for a particular road is thus dependent upon the character of the surface and of the traffic. The use of tarvia B and tarvia A and calcium chloride were continued, each giving good results commensurate with the cost of application. The latter is found to be especially advantageous on residence streets with only local travel, the streets always presenting a clean, damp appearance where it is used.

The cost of applying the various dust preventives per square yard per season is found to be about as follows, figures representing an average cost in an average situation:

Location of work.	Oil (one-fourth to one-half gallon per square yard).	Labor for hauling, applying, cleaning, and protecting road.	Screenings or sand.	Total cost.
<i>Heavy oils.</i>				
Ridge Road, Rock Creek Park (liquid asphalt).....	\$0.037	\$0.010	\$0.003	\$0.048
Twentieth Street, etc. (asphaltolene), (contract)	1.050	.010	.008	.068
Connecticut Avenue (Standard No. 6).....	.012	.018	.004	.034
<i>Light oils.</i>				
Rock Creek Church Road (Texas Road oil No. 2), one application only ¹.....	.011	.002	.000	.013
Wisconsin Avenue (emulsified oil), 15 applications per season.	.022	.012	.000	.034
Military Road (tarvia B).....	.038	.021	.003	.061
Various streets (calcium chloride), eight applications.....	.030	3.011	.....	.041

¹ Applied by contract, hauling included in price of oil.

² This work done in fiscal year 1912 and used for comparison. Two or three applications per season would be needed.

³ This cost will be much reduced next year by machine application.

The cost of watering regularly for an ordinary season of about eight months has been found to be about \$0.025 per square yard.

The use of bituminous binders in the repair and construction of macadam roads, begun last year, was continued upon as large a scale as funds would permit; and it is recommended that hereafter no important roads carrying heavy traffic be built without such binders. It is certain that by the use of a good binder carefully applied the life of the roads may be considerably extended, the cost of repair lessened, and the dust nuisance reduced to a minimum, with consequent additional decrease of cost. Many of the old macadam roads which are badly worn require resurfacing with stone bound by bituminous binder, and it is recommended that as large an amount as possible of future appropriations be expended for such permanent repair. The cost of application of a heavy bituminous binder by the penetration method is from 20 to 25 cents per square yard for a layer 2 inches thick, and by the mixing method varies from 93 to 98 cents by contract for Bermudez asphalt. A portable mixing plant would enable the District to do such work by hired labor for much less than this.

The work done upon construction of county roads and suburban streets in that portion of the District lying outside of the original city boundaries, for which the appropriations amounted to a total of \$81,100, is shown in Table E of the report of the engineer of highways. The appropriation made for Kennedy Street was not expended on account of the fact that the entire amount of land necessary was not dedicated.

The work under this head consisted mainly of the construction of macadam roadways. The following portion of this work is done under contract, viz, setting curb, laying gutters, grading roadway to subgrade, and the purchase and delivery of stone and other construction material at the site of the work. The spreading and rolling of the stone and the application of bituminous binder was done by hired labor on account of the great difficulty in having this work done satisfactorily by contract.

The repair of all cuts for subsurface work in macadam roadways outside of the city proper was made by this division, and a statement of this work is included in the report of the office having charge of repair of cuts.

The repairs to county roads, for which purpose the amount available was \$140,000, was expended as set forth in the table below, the items being divided as follows:

Labor and materials for larger repairs.....	\$59,457.54
Labor for minor repairs, representing small items and miscellaneous work.	37,717.85
Sprinkling.....	12,666.31
Applying oil and other dust preventives.....	15,845.28
Miscellaneous items, stone, and other materials, tools, hardware, etc. (not included above).....	3,247.35
Hauling stone by contract.....	6,066.31
Construction of five oil tanks.....	2,863.12

Purchase of steam roller (one-half cost).....	\$1, 125. 00
Purchase of oiling wagon.....	375. 00
	<hr/>
Balance.....	139, 363. 76
	<hr/>
Total appropriation.....	140, 000. 00

The larger items of repairs made were as follows:

Wisconsin avenue, from Ellicott Street to the District line, a part of which was water bound and a part constructed with bituminous binder.....	\$7, 412. 55
Wisconsin Avenue, repair and oiling entire length (emulsion).....	1, 585. 57
Connecticut Avenue, repairs to macadam.....	2, 195. 59
Connecticut Avenue, oiling twice, heavy oil.....	3, 820. 26
Connecticut Avenue Bridge, repairs with tarvia X.....	1, 702. 70
Sixteenth Street, repairs and applying tarvia B.....	3, 469. 15
Georgia Avenue, repairs and oiling, and New Hampshire Avenue (emulsion and heavy oil).....	3, 250. 17
Fourteenth Street, repairs and applying tarvia B.....	1, 967. 97

The work required for establishment of grades for the permanent system of highways in the undeveloped sections was unusually heavy and required a considerable part of the time of the one field party engaged upon suburban work.

Respectfully submitted.

L. R. GRABILL,
Superintendent of County Roads.

The ENGINEER OF HIGHWAYS.

REPORT OF THE ENGINEER OF BRIDGES.

WASHINGTON, D. C., *September 1, 1911.*

SIR: I have the honor to submit the following report for the fiscal year ended June 30, 1911.

The expenditures under the construction and repair of bridges are as follows:

Expenditures, appropriation for "Construction and repair of bridges, 1911."

Bridge No.	Character of work.	Cost.
7	Repairing one broken lateral.....	\$4. 27
7	Lumber for reflooring.....	4, 302. 80
25	Paint.....	248. 19
27	Replace about 30 feet of west wing wall.....	419. 78
30	Minor repairs, railroad bridge.....	113. 41
34	.....do.....	398. 97
35	.....do.....	4. 25
35	Refloor.....	1, 429. 50
35	Paint (cost of paint).....	87. 00
36	Paint.....	149. 87
52	.....do.....	584. 52
54	.....do.....	932. 43
54	Relay sidewalk.....	2, 182. 83
54	Rebuild fences on east approach (not completed).....	360. 67
251	Manhole in roadway.....	1. 60
251	Waterproofing lions, material.....	22. 27
	Dangerous holes and minor repairs:	
	July 1 to 15, 1910.....	182. 14
	Aug. 1 to 15, 1910.....	3. 00
	Aug. 16 to 31, 1910.....	13. 50
	Sept. 1 to 15, 1910.....	27. 50
	Sept. 16 to 30, 1910.....	157. 25
	Oct. 1 to 15, 1910.....	133. 09
	Oct. 16 to 31, 1910.....	4. 25
	Nov. 16 to 30, 1910.....	25. 75
	Dec. 16 to 30, 1910.....	23. 25
	Jan. 1 to 15, 1911.....	55. 13
	Jan. 16 to 31, 1911.....	24. 37
	Feb. 1 to 15, 1911.....	31. 50
	Feb. 16 to 28, 1911.....	41. 81
	Mar. 1 to 15, 1911.....	4. 25
	Mar. 15 to 31, 1911.....	98. 75
	Apr. 1 to 15, 1911.....	7. 00
	Apr. 16 to 30, 1911.....	4. 88
	May 1 to 15, 1911.....	35. 66
	May 16 to 30, 1911.....	31. 55

Expenditures, appropriation for "Construction and repair to bridges, 1911—Continued.

Bridge No.	Character of work.	Cost.
	Dangerous holes and minor repairs—Continued.	
	June 1 to 15, 1911.....	
	June 16 to 30, 1911.....	
	Photographic supplies.....	\$6.92
	Car tickets.....	20.00
	Coal, Aqueduct Bridge office.....	13.20
	Office supplies.....	35.77
	Board for inspector's horse, at \$15.....	180.00
	Tools.....	45.00
	Forage.....	93.40
	Salaries.....	2,700.85
	Total expended.....	15,243.11
	Appropriation "Construction and repair of bridges, 1911".....	15,000.00
	Repayments:	
	1911—Capitol Traction R. R. Co., half cost, No. 30.....	57.29
	1911—Capitol Traction R. R. Co., half cost, No. 35.....	22.04
	1911—Washington Ry. & Electric Co., half cost, No. 34.....	23.04
	Total amount available.....	15,378.87
	Amount expended to date.....	15,243.11
	Balance.....	135.76
	Total.....	15,378.87

Attention is again called to the conditions at the north end of the Connecticut Avenue Bridge. This monumental structure, erected at a cost of \$849,796.02, is in danger of having its appearance seriously marred on account of the encroachment of private improvements. Due to lack of efficient waterproofing the surface of this bridge is showing a great deal of discoloration. It is therefore recommended that an appropriation of \$20,000 be requested in order to effectively stop this and also to prevent the enlargement through the mechanical action of freezing and thawing of the shrinkage cracks found in all structures of this character. It is also recommended that authority be granted the commissioners to do this work either by contract or by day labor, using such methods and material as they shall decide to be most effective.

The four concrete lions on the abutments of this bridge were thoroughly cleaned recently and given a coating of a colorless transparent preservative, in order to prevent moisture from penetrating the surface. The effectiveness of this work can not be determined until the lions shall have been exposed to a winter's freezing and thawing weather.

The four bronze tigers for the Sixteenth Street Bridge over Piney Branch, for which a contract was entered into with Mr. A. Phimister Proctor, sculptor, on September 22, 1909, for \$10,000, were emplaced this spring. They form a very handsome addition to the bridge. Attention is again called to the desirability of obtaining as soon as possible the small amount of land (2½ acres) immediately east of this bridge, in order not only to preserve the integrity of the structure, but to give the only practicable approach to Piney Branch Parkway and Rock Creek Park.

Under existing legislation bids were opened January 6 for strengthening and stiffening Calvert Street Bridge over Rock Creek, and a contract was entered into with the Penn Bridge Co. to do the work for the sum of \$19,589. The work will be completed August 24. This bridge (known as No. 30) was built in 1891 by the Edge Moor Bridge Co. for the Rock Creek Railway Co. and in 1893 was turned over to the District of Columbia. It is a wrought-iron structure consisting of five metal towers supporting six pin-connected deck Pratt trusses. Its total length is 750 feet and it carries, besides the vehicular traffic, the cars of the Connecticut Avenue branch of the Capital Traction Co. In January, 1910, the street railway company desired to run heavier cars over this bridge and in order to render the structure safe under them this office built five heavy wooden towers to relieve the overstress that would thus be caused in the tower spans. An appropriation of \$12,000 with the proviso that the street railway company should deposit a like amount for stiffening and strengthening the bridge being obtained, plans for the work were prepared in this office. The light rods in all the towers have been replaced by rigid diagonals, the tower trusses by heavy plate girders, the light sway rods by heavy cross frames. The bridge is now free from excessive vibrations of the past and will be safe for a number of years. At the same time it is felt that on account of its appearance and prominent situation a

bridge of this type is out of keeping with the surroundings, and it is again suggested that an appropriation of \$5,000 be requested for the purpose of making surveys, borings, plans, and estimates for a modern bridge.

The west wing wall of the north abutment of bridge No. 27 on Connecticut Avenue showing signs of failure, it was torn down and rebuilt on safe lines at a cost of \$420.

Under contract with E. G. Gummel a concrete arch of 16-foot span with rustic walls was built on Beach Drive, Rock Creek Park, about half a mile north of Milk House Ford, at a cost of \$1,191.45. Also a 12-foot span reinforced-concrete ribbed skew arch on the same road about one-fourth mile above the ford was built by day labor at a cost of \$655.92. Also on the driveway being built connecting Sixteenth Street with Beach Drive at Military Road a 24-foot span reinforced-concrete ribbed skew arch with granite ring stones and rubble face was built for \$2,816.54. These bridges were designed and built by this office and paid for out of the Rock Creek Park funds.

Five steel tanks of 11,000 gallons capacity each were built by the E. J. Codd Co. and mounted alongside the tracks of the Baltimore & Ohio Railroad at Anacostia, Deanwood, Takoma, Second and N Streets NE., and Chevy Chase, Md., for the storage of road oil. Pipes lead under the tracks to the tank cars for the rapid unloading of the cars. These tanks were built and erected under the direction of this office and paid for out of the county-road funds.

A timber-pile trestle to support the crane and sand and gravel loading bins of concrete and timber were built at the sand and gravel wharf by this office for the District purchasing office. An appropriation of \$16,500 having been made for reconstructing the said sand and gravel wharf, plans and specifications have been made and a contract is about to be executed with the lowest bidder. This will give the District a first-class wharf.

Plans and specifications have been drawn for the subway to carry Cedar Street, Takoma, D. C., under the tracks of the Baltimore & Ohio Railroad. It is hoped that the contract for this work will soon be executed.

Bridge No. 35 (M Street over Rock Creek) was refloored at a cost of \$1,429.50, the sidewalk of bridge No. 54 (Pennsylvania Avenue over Eastern Branch) was refloored at a cost of \$2,183.83; bridge No. 36 (K Street over Rock Creek), No. 52 (Benning's Road over Eastern Branch), and No. 54 (Pennsylvania Avenue Bridge over Eastern Branch) were painted at a total cost of \$1,666.82.

I would urge that \$20,000 for construction and repair to bridges be allowed for the ensuing year, as owing to the large increase in cost of lumber and the age of some of the structures it is with great difficulty that we are able to keep them in a safe and creditable condition with the existing funds.

I would also suggest, in view of the fact that the organization of the Anacostia Bridge force is permanent, the members be placed on the annual roll, the rate of compensation being determined by multiplying the daily rate by 365 as the men are necessarily on duty daily, Sundays and holidays included. The chief electrician on the bridge, Mr. Nothnagle, has kept the bridge in excellent condition, and the smoothness in the running of the machinery and ease in raising and lowering the leaves of the draw have been favorably commented upon. If the present organization be placed on the permanent roll, then \$3,100 will be required in addition for operation and maintenance, including labor, miscellaneous supplies, and painting. If the present organization be not placed on the permanent roll, then \$7,600 will be required—\$2,000 more than the current appropriation—on account of the absolute necessity for painting the structure.

It is believed that \$100,000 can be profitably expended during the next fiscal year toward constructing the Q Street Bridge over Rock Creek, and it is urged that legislation be made authorizing the obtaining by condemnation proceedings or otherwise of a strip of land 90 feet in width on both sides of Q Street opposite the proposed bridge in order to take care of the side slopes. Without this great difficulty will be experienced and a great expense entailed in cribbing these banks, especially on the west side of the stream.

An estimate of \$115,000 is again submitted for constructing a viaduct over the tracks of the Baltimore & Ohio and Pennsylvania Railroads on the Benning's Road, this being a rather heavily traveled grade crossing.

Very respectfully,

THOS. C. J. BAILY, Jr.,
Engineer of Bridges.

The ENGINEER OF HIGHWAYS.

TABLE A.—Street railroads in operation in District of Columbia July 1, 1911.

Name of company.	Underground electric.		Overhead electric.	
	Double track.	Single track.	Double track.	Single track.
Washington Railway & Electric Co.:	<i>Miles.</i>	<i>Miles.</i>	<i>Miles.</i>	<i>Miles.</i>
Metropolitan.....	8.60	3.98		
Columbia.....	2.77		4.12	0.89
City & Suburban.....	3.86	2.36	5.58	
Brightwood.....			5.93	
Georgetown & Tenallytown.....			4.16	
Anacostia & Potomac River.....	7.65		1.46	1.64
Total.....	22.88	6.34	21.25	2.53
Capital Traction.....	20.19	3.60	3.57	
Washington & Great Falls.....			3.88	
Washington, Alexandria & Mount Vernon.....	.30	.46		
East Washington.....				.50
Washington, Spa Springs & Greta R. R.....				2.65
Total.....	43.37	10.40	28.70	5.68
Tracks used in common by Capital Traction and Washington Railway & Electric companies.....	1.55			
Used in common by Washington Railway & Electric and Washington, Alexandria & Mount Vernon companies.....	.40			
Total.....	45.32	10.40	28.70	5.68

Baltimore & Washington Transit Co., 2.33 miles single track, not yet in operation.

TABLES B AND C.—Character and extent of roadway pavements July 1, 1911.

Section.	Asphalt.	Asphalt block.	Granite and rubble.	Vitrified block.	Cobble.
Northwest.....square yards..	1,672,940	36,023	169,611	16,747	35,423
Northeast.....do.....	255,050	231,458	25,193	3,882	
Southeast.....do.....	169,842	210,082	43,734		8,689
Southwest.....do.....	224,199	56,830	191,729	3,138	19,608
Georgetown.....do.....	135,952	21,204	58,677	1,635	14,426
Suburban.....do.....	{ 12,090 309,000	76,592	27,394		
Total.....do.....	2,779,073	632,189	516,338	25,402	78,146
Gutters.....do.....	192,850				
Railroad pavement.....do.....	360,000	3,500	150,000	4,200	
Total.....do.....	3,331,923	635,689	666,338	29,602	
Miles.....	146.33	32.32	26.10	1.40	3.96

Section.	Macadam.	Gravel and unimproved.	Gutters on asphalt streets.	Pavements maintained by street railways.	Total.
Northwest.....square yards..	36,321	58,571	112,432	255,150	2,392,418
Northeast.....do.....	31,331	207,074	21,954	70,000	839,742
Southeast.....do.....	33,839	275,000	12,651	47,600	801,437
Southwest.....do.....	26,852	127,158	21,609	55,900	727,023
Georgetown.....do.....	10,816	24,301	3,395	35,700	306,106
Suburban.....do.....	1,272,573	1,400,000	20,809	92,400	3,210,858
Total.....do.....	1,411,732	2,092,104	192,850	556,750	8,277,584
Miles.....	90.50	163.56			464.17

¹ Asphaltic macadam.

TABLE E.—Statement of work of

Street.	From—	To—	Section.	Kind of improvement.			
					Square yards.	Length.	N
V.....	Twelfth.....	Thirteenth.....	Northwest.....	Asphalt.....	1,227.99	<i>Feet.</i> 381	
Market Space.....	Seventh.....	Eighth.....	do.....	do.....	901.16	219	
D.....	do.....	do.....	do.....	do.....	1,249.53	288	
Twenty-seventh.....	Olive.....	N.....	Georgetown.....	do.....	951.91	284	
Florida Avenue.....	Ninth.....	Thirteenth.....	Northeast.....	do.....	8,176.20	1,560	
B.....	Thirteenth.....	Fourteenth.....	Southeast.....	Asphalt block.....	3,167.68	795	
Twelfth.....	Pennsylvania Avenue.....	I.....	do.....	do.....	3,250.33	913	
Pennsylvania Avenue.....	Eleventh.....	Thirteenth.....	do.....	Asphalt.....	2,341.52	653	
I.....	First.....	Second.....	Southwest.....	do.....	1,699.28	459	
Maine Avenue.....	Four-and-a-half.....	Sixth.....	do.....	Asphalt block.....	2,200.18	610	
Neal Place.....	Fourth.....	Fifth.....	Northwest.....	do.....	2,939.00	750	
Totals.....					28,104.78	6,912	
Total asphalt.....					16,547.59	3,844	
Total asphalt block.....					11,557.19	3,068	

Street.	From—	To—	Section.	Kind of improvement.	Sq yards.
Rhode Island Avenue.....	Lincoln Road.....	Fourth.....	Northeast.....	Grading.....	
OTIS.....	Thirteenth.....	Fourteenth.....	Northwest.....	Macadam.....	
Twenty-fourth.....	Rhode Island Avenue.....	Irving.....	do.....	do.....	
Ninth.....	Monroe.....	Newton.....	do.....	do.....	
Monroe.....	Thirteenth.....	Fifteenth.....	do.....	do.....	
Varnum.....	Georgia Avenue.....	Eighth.....	Northwest.....	do.....	
Third Street and Marlboro Place north of Shepherd.....			do.....	do.....	
Twenty-second.....	Rhode Island Avenue.....	Lawrence.....	Northwest.....	do.....	
Evarts.....	Twentieth.....	Twenty-second.....	do.....	do.....	
Quincy.....	Fifth.....	Seventh.....	Northwest.....	do.....	
Colorado Avenue.....	Fourteenth.....	A Road.....	do.....	do.....	
Kearney.....	Thirteenth.....	Eighteenth.....	Northwest.....	Grading.....	
Macomb.....	Ross Place.....	Thirty-third.....	do.....	do.....	
do.....	do.....	do.....	do.....	Macadam.....	
Fourth.....	End of asphalt.....	Rhode Island Avenue.....	Northwest.....	do.....	
South Dakota Avenue.....	Carlton.....	do.....	do.....	do.....	
Girard.....	Twelfth.....	Fourteenth.....	do.....	do.....	
Irving.....	Twenty-fourth.....	South Dakota Avenue.....	do.....	do.....	
Longfellow.....	Georgia Avenue.....	Colorado Avenue.....	Northwest.....	Grading.....	
Seventeenth.....	Newton.....	Hamlin.....	Northwest.....	Macadam.....	
Total.....					36
Total vitrified brick.....					
Total cobble.....					

¹ Asphalt block laid by day labor.² Vitrified brick.

TABLE E.—Statement of work on streets and avenues and county roads and suburban streets for year ending June 30, 1911.

STREETS AND AVENUES.

To—	Section.	Kind of improvement.	Contract work.										Material.				Cost of material.	Cost of extra work and day labor.	Amount of contract work.	Total cost of work.	Contractor.			
			Square yards.	Length.	No. of contract.	Price per square yard.	Ordinary grading.	Macadam grading.	Old cobble and granite removed.	Old curb removed.	Curb set.	Curb reset.	Vitrified and cobble gutters.	Vitrified block.	8 by 8 inches curb.	6 by 20 inches curb.						Circular curb.		
				<i>Feet.</i>			<i>Cubic yards.</i>	<i>Cubic yards.</i>	<i>Square yds.</i>	<i>Linear feet.</i>	<i>Linear feet.</i>	<i>Linear feet.</i>	<i>Square yds.</i>		<i>Linear feet.</i>	<i>Linear feet.</i>	<i>Linear feet.</i>							
Thirteenth.	Northwest	Asphalt	1,227.99	381	4634	\$1.77	95.80	225.80	305.71	774.46	866.17	44.74	150.95	8,700	800.00		47.10	\$820.20		\$3,350.46	\$4,170.66	Cranford Paving Co.		
Fourth.	do.	do.	901.16	219	4634	1.77	176.41		977.00			12.99	73.15	3,400				67.83		2,138.47	2,206.30	Do.		
do.	do.	do.	1,249.53	288	4634	1.77	318.61		1,341.70	240.58	339.92	115.40	5,200	210.13		34.54		295.53		3,750.99	4,046.52	Do.		
Thirteenth.	Georgetown.	do.	951.91	284	4634	1.77	73.81	140.10	206.76		25.00		565.08	116.04	5,337			106.47		2,222.26	2,328.73	Do.		
Thirteenth.	Northwest	do.	8,176.20	1,560	4634	1.77	350.00	164.63	1,334.00		630.29	2,480.51	493.10	22,066			500.00	173.88	1,085.18	\$829.79	16,522.26	18,437.23	Do.	
Fourth.	Southwest	Asphalt block.	3,167.68	795	4645	1.65	396.00	385.00	810.00	1,467.00	1,592.44						1,549.79	43.96	1,429.86		6,208.06	7,637.92	Washington Asphalt Block & Tile Co.	
Fourth.	do.	do.	3,250.33	913	4645	1.65		761.00	1,520.00	1,738.62	204.46						1,729.06	12.56	1,533.30		5,913.50	8,066.80	Do.	
Fourth.	do.	Asphalt.	2,341.52	653	4634	1.77		386.00	722.36	75.00	68.11	890.26	100.60	4,512				71.23	5.26	137.72		5,201.28	6,119.36	Cranford Paving Co.
Fourth.	Southwest	do.	1,099.28	459	4634	1.77	155.00	195.00	756.11	35.00	4.07	997.82	148.60	6,000				5.26	137.72		4,000.17	4,137.89	Do.	
Fourth.	do.	Asphalt block.	2,200.18	610	4645	1.65	313.11		2,558.73	649.50	624.33	705.40						559.27		4,099.85	5,259.12	Washington Asphalt Block & Tile Co.		
Fourth.	Northwest	do.	12,939.00	750	4645	(1)	760.23		49.53	1,408.30	30.47				1,311.61		107.01	1,089.65	1,135.43	1,239.68	3,464.76	Do.		
			28,104.78	6,912			2,288.97	2,409.90	9,773.37	3,700.12	7,172.91	6,410.17	1,197.84	55,815	2,321.74	4,373.97	523.94	7,316.93	1,965.22	55,765.06	65,047.21			
			16,547.59	3,844																				
			11,557.19	3,068																				

COUNTY ROADS AND SUBURBAN STREETS.

To—	Section.	Kind of improvement.	Contract work.										Material.				Cost of material.	Cost of extra work and day labor.	Amount of contract work.	Total cost of work.	Contractor.	
			Square yards.	Length.	No. of contract.	Price per cubic yard.	Ordinary grading.	Old cobble and granite removed.	Curb set.	Curb reset.	Vitrified and cobble gutters.	Vitrified block.	8 by 8 inches curb.	6 by 20 inches curb.	Circular curb.							
fourteenth.	Northwest.	Grading.		Feet.	4703	\$0.29	Cubic yards. 34,238	Square yds. 408	Linear feet. 1,447.33	Linear feet. 26.42	Square yds. 374.57	10,550	Linear feet. 1,402.48	Linear feet. 53.38	Linear feet. 53.38		\$3,410.20	\$69.98	\$9,929.02	\$9,999.00	W. F. Brenizer Co.	
fourteenth.	do.	Macadam.	2,432	763	4706		408										391.17		956.19	4,757.56	E. G. Gummel.	
fourteenth.	Northwest.	do.	1,653	620	4706		411										1,032.19		431.00	1,875.19	Do.	
fourteenth.	do.	do.	867	325	4706												543.78		159.67	876.51	Do.	
fourteenth.	do.	do.	2,933	1,200	4706		1,812										1,580.57		854.18	3,748.31	Do.	
fourteenth.	Northwest.	do.	2,040	630	4706		277		185.00	285.00	300.20	13,370					1,494.70		439.56	2,400.00	Do.	
fourteenth.	do.	do.	1,555	700	4706		368		185.52	55.00	646.97						1,188.68		241.12	1,948.64	Do.	
fourteenth.	Northwest.	do.	1,780	728	4706		436				701.90						1,322.96		357.59	2,233.74	Do.	
fourteenth.	do.	do.	1,345	550	4661		2,500		1,127.08	6.28	523.60							244.37		1,198.50	1,442.87	George Hyman.
fourteenth.	Northwest.	do.	2,215	653	4706		667		40		350.10	15,380					1,707.12		633.52	2,850.57	E. G. Gummel.	
fourteenth.	do.	do.	4,500	1,223	4706		1,570		18.90		1,170.60						3,357.02		2,428.14	7,000.00	Do.	
fourteenth.	Northwest.	Grading.			4749	.21	15,025										1,159.12		3,330.88	4,990.00	Do.	
fourteenth.	do.	do.			4705	.27	21,080												5,091.60	5,091.60	George Hyman.	
fourteenth.	do.	Macadam.	3,146	1,287	4706		802		8.00		1,170.30						2,193.30		498.36	742.90	E. G. Gummel.	
fourteenth.	Northwest.	do.	1,741	345	4706				353.02		178.80	7,928	287.19		68.48		622.06		451.76	265.61	Do.	
fourteenth.	do.	do.	3,230	1,220	4706		609				800.40						1,502.51		580.94	2,799.97	Do.	
fourteenth.	do.	do.	3,180	1,300	4706		3,399				1,139.30						1,754.30		588.57	3,849.71	Do.	
fourteenth.	Northwest.	do.	1,877	768	4706		3,192				720.10						1,098.48		469.25	2,798.70	Do.	
fourteenth.	Northwest.	Grading.			4704	.27	8,920												337.74	2,453.00	2,790.74	Harper & Voigt.
fourteenth.	do.	Macadam.	1,870	740	4706		5,287		10.00		862.35						1,746.91		635.69	2,461.84	4,944.44	E. G. Gummel.
fourteenth.	do.	do.	36,387	13,032			101,061		3,366.85	382.70	10,809.89	53,228	1,689.67		121.86		24,554.78	10,967.12	35,949.64	71,471.54		

labor.

ge 48).

* Vitrified brick.

* Includes \$375 for culvert.

* Not included, \$650 for water main and \$503.13 for sewer (bills outstanding).

TABLE F.—Repairs to asphalt pavements under contract with Brennan Construction Co. (No. 3927) for the year ending June

Streets.	From—	To—	Section.	Repairs to asphalt.							New gutters.					
				New pavement.	Resurfacing.	Base.	Binder.	Old pavement removed.	Grading.	Total cost of repairs.	Vitrified block gutters.	Grading and removal of material.	Number of blocks.	Cost of blocks.	Total cost of gutters.	Old curb removed.
B.	Delaware Avenue.	First.	Northeast.	Square yds. 1,360.00	Square yds. 55.85	Cubic ft. 3.00	Cubic ft. 66.60	Cubic yds. 210.00	Cubic yds. 200.00	\$2,725.05	Square yds. 90.76	Cubic yds. 32.00	4,030	\$80.40	\$280.79	Linear ft.
E	Second.	Fourth.	do.	3,124.52	112.98	56.50	44.40	3,193.00	230.00	5,772.21	277.14	56.50	12,330	245.98	665.40	
F (north side)	Fifth.	Sixth.	Northwest.	312.96		42.36	446.23	31.00		580.58	31.63	31.00	1,400	27.93	96.05	
F	Sixth.	Seventh.	do.		357.61	1.72	1,198.60	1,172.00		838.50	83.85	15.00	3,720	74.21	218.47	
F	Ninth.	Fourteenth.	do.	4,320.92	56.00	.80	22.20			8,870.29	344.79	86.00	14,689	293.05	903.99	1,341.00
G	New Jersey Avenue.	Fifth.	do.	3,462.39	1,426.15	233.40	2,109.00	508.00	475.00	13,433.85	616.70		23,442	467.67	1,328.45	116.00
H	Third.	Fourth.	do.	129.33	664.96	16.60	932.40		6.00	1,011.75	69.33	25.00	3,096	61.77	164.65	418.00
M	Wisconsin Avenue.	Thirty-sixth.	do.		6,797.73	20.60	11,140.70	20.60		7,065.80	574.43	* 660.00	20,038	399.76	807.64	25.00
Massachusetts Avenue.	New Jersey Avenue.	Fourth.	do.	1,206.44	5,115.88	455.33	6,689.60	258.20	204.00	10,243.92	385.64	89.00	14,990	299.05	851.31	2,090.00
Do.	Twelfth.	Thirteenth.	do.		2,597.33	182.89	3,870.26			3,770.65	149.87	25.00	6,742	134.50	380.33	34.00
Do.	Thirteenth.	Fourteenth.	do.	3,389.07	95.77	26.00	143.00	887.80	362.00	7,991.75	257.29	43.00	11,575	230.92	625.17	16.55
Missouri Avenue (south side)	Four-and-a-half.	Sixth.	do.	289.80	4.63		5.92	* 393.00	539.62	539.62	103.43	20.00	4,600	91.71	245.48	
North Capitol.	M.	N.	Northwest.		2,251.76	165.78	3,250.89	11.00		3,197.46	273.59	* 331.58	12,150	242.39	491.57	
New York Avenue.	North Capitol.	M.	do.	4,743.57	645.64		1,062.00	912.00	300.00	8,834.24	510.58	125.00	21,985	438.60	1,266.38	380.00
Q	Tenth.	Vermont Avenue.	do.	354.08	1,866.66		3,759.20	45.00	62.00	3,114.07	328.27	82.00	14,200	203.17	699.08	18.00
R	Eleventh.	do.	do.		745.07	94.27	740.00			1,223.86	69.61	11.00	3,100	66.19	176.40	
Thomas Circle.				7,464.55	681.53	438.00	2,397.60	332.00	100.00	18,107.46	411.90	70.00	18,531	369.39	995.86	1,737.00
Vermont Avenue.	K.	Thomas Circle.		4,340.47	150.32		177.60	1,048.00	126.00	9,259.95	409.38	70.00	18,418	367.44	990.63	1,930.00
Vernon.	Eighteenth.	Nineteenth.			1,606.50	347.90	2,286.60	237.00	221.00	2,949.51						
Washington Circle.				9,146.56	664.77		1,164.30	1,900.00	150.00	18,298.23	569.87	100.00	25,450	507.73	1,390.16	3,365.00
Second.	D.	H.	Northwest.	3,463.59	2,850.87		4,965.40	778.00	100.00	12,029.58	886.42	221.00	38,386	765.80	2,245.22	3,647.00
Do.	Massachusetts Avenue.	Maryland Avenue.	Northwest.	3,110.91	51.40		44.40	* 3,466.00		5,714.90	355.41	90.00	15,791	315.03	871.56	4.77
Third.	D.	H.	Northwest.	6,468.02	440.01	18.00	318.20	1,781.00		14,626.07	863.06	144.00	38,594	769.95	2,126.67	3,273.00
Tenth.	New York Avenue.	K.	do.	1,305.70	130.10	9.30	133.20	403.00	72.00	2,940.19	119.23	30.00	4,770	101.84	306.67	
Twelfth.	R.	S.	do.	1,498.35	142.93		162.86	276.00		3,338.25	206.61	52.00	9,247	154.48	490.85	
Do.	S.	V.	do.	4,170.18	516.30	27.50	754.80	879.00	123.00	8,717.98	678.96		7,367	147.37	1,349.03	
Fourteenth (east side)	C.	D.	do.		1,358.47	57.82	2,400.52	9.00	3.00	1,810.14	66.91		1,136	22.66	105.96	242.00
Fourteenth (west side)	B.	D.	do.	2,384.33	8.20		531.00	32.00	32.00	4,703.62	133.21	22.00	5,993	119.56	323.31	787.00
Fourteenth (east side)	Fairmont.	Park Road.	do.		4,026.59		4,306.80	28.00	28.00	4,029.03	331.01	83.00	14,420	307.87	885.23	9.42
Do.	Florida Avenue.	Clifton.	do.		* 1,738.62	121.00		128.50	10.00	2,666.62						
Twenty-third.	Thomas Circle.	N.	do.	663.30	202.52		362.60	105.00	70.00	1,592.97	53.29	14.00	2,397	47.82	138.10	
	Washington Circle.	L.	do.	533.10				* 589.00		957.24	59.05		2,600	51.57	128.63	354.00
Total.				67,242.74	37,363.20	2,318.77	54,960.88	20,104.10	3,413.62	190,875.34	9,313.22	2,528.38	375,187	7,436.11	21,519.04	20,787.74
Various streets resurfaced by heater method.					78,794.00											
Total.					116,157.20											

Minor repairs.

69,680 cubic feet top surface, at 44 cents
51,248.6 cubic feet binder, at 25 cents

Total.

New curb and incidental costs are chargeable to appropriations for "Assessment and permit" and "Sidewalks and curbs."

Detailed statement of resurfacing by heater method.

Locations.	Square yards.	Cost.	Date.	Original pavement.			Locations.
				Character.	Year laid.	Contractor.	
Connecticut Avenue NW. (west side), south to Le Roy Place	1,191	\$766.48	July, 1910	Asphalt.	1894	Private expense.	Second Street NW., between H and K Streets.
Corcoran Street NW., between Fifteenth Street and New Hampshire Avenue.	4,260	2,783.98	Sept., 1910	Asphalt, 4-inch base.	1883	H. L. Cranford.	Fourth Street NW., between E and G Streets.
DeFrees Street NW., between North Capitol and First Streets.	787	577.32	Nov., 1910	Asphalt block.	1885	Superintendent of streets.	Fourth and G Streets NW. (intersection).
Dumbarton Avenue NW., between Thirtieth Street and Wisconsin Avenue.	2,573	1,788.56	Aug., 1910	Coal-tar distillate.	1887	Barber Asphalt Co.	Eighth Street NW., between E and F Streets.
E Street NW., between Sixth and Ninth Streets.	4,672	3,151.08	Sept., Oct., 1910	Asphalt.	1878, 1889	W. R. Davis.	Eighth Street NW., between L and N Streets.
E Street NW., between Eighteenth and Nineteenth Streets.	1,432	822.76	July, 1910	Coal tar.	1873	C. E. Evans.	Eighteenth Street NW., between I and L Streets.
I Street NW., between New Jersey Avenue and Third Street.	1,905	1,318.56	Oct., 1910	Asphalt.	1884	Barber Asphalt Co.	Thirtieth Street NW., between I and L Streets.
Indiana Avenue NW., between First and Third Streets.	7,370	5,700.36	do.	do.	1887	do.	Seventeenth Street NW. (east side), between I and K Streets.
K Street NW., between Fifth and Seventh Streets.	3,152	2,149.36	Sept., 1910	Asphalt, bituminous base.	1889	H. L. Cranford.	Eighteenth Street NW., between K and L Streets.
M Street NW., between Fourteenth and Sixteenth Streets.	3,556	2,219.04	do.	Asphalt.	1881	A. L. Barber.	Eighteenth Street NW., between L and M Streets.
N Street NW., between Thirty-third and Thirty-fifth Streets.	2,680	1,833.12	Aug., 1910	do.	1880	J. S. Baldwin.	Nineteenth Street NW., between E and G Streets.
O Street NW., between Twenty-ninth Street and Wisconsin Avenue.	4,990	3,183.84	July, 1910	Coal tar.	1885	Barber Asphalt Co.	Twenty-second Street NW., between K and M Streets.
P Street NW., between Twenty-second Street and bridge, and west of bridge.	423	337.01	Nov., 1910	Coal tar.	1872, 1896	C. E. Evans.	Thirtieth Street NW., between N and Q Streets.
Pennsylvania Avenue NW., between Twenty-sixth and Twenty-ninth Streets.	2,585	2,023.09	Aug., 1910	do.	1877, 1888	W. C. Murdock.	Thirty-fifth Street NW., between N and F Streets.
Pennsylvania Avenue SE. (south side), between Eighth and Eleventh Streets.	4,030	3,430.40	July, Aug., 1910	Asphalt, bituminous base.	1888	Barber Asphalt Co.	
Vermont Avenue NW., between K and L Streets.	400	410.61	Sept., 1910	Coal tar.	1872, 1881	W. B. Parisen.	
Second Street NW., between Indiana Avenue and D Street.	910	611.04	Oct., 1910	Asphalt.	1881	H. L. Cranford.	

Average cost per square yard, \$0.6817.

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* Resurfaced.

* Square yards.

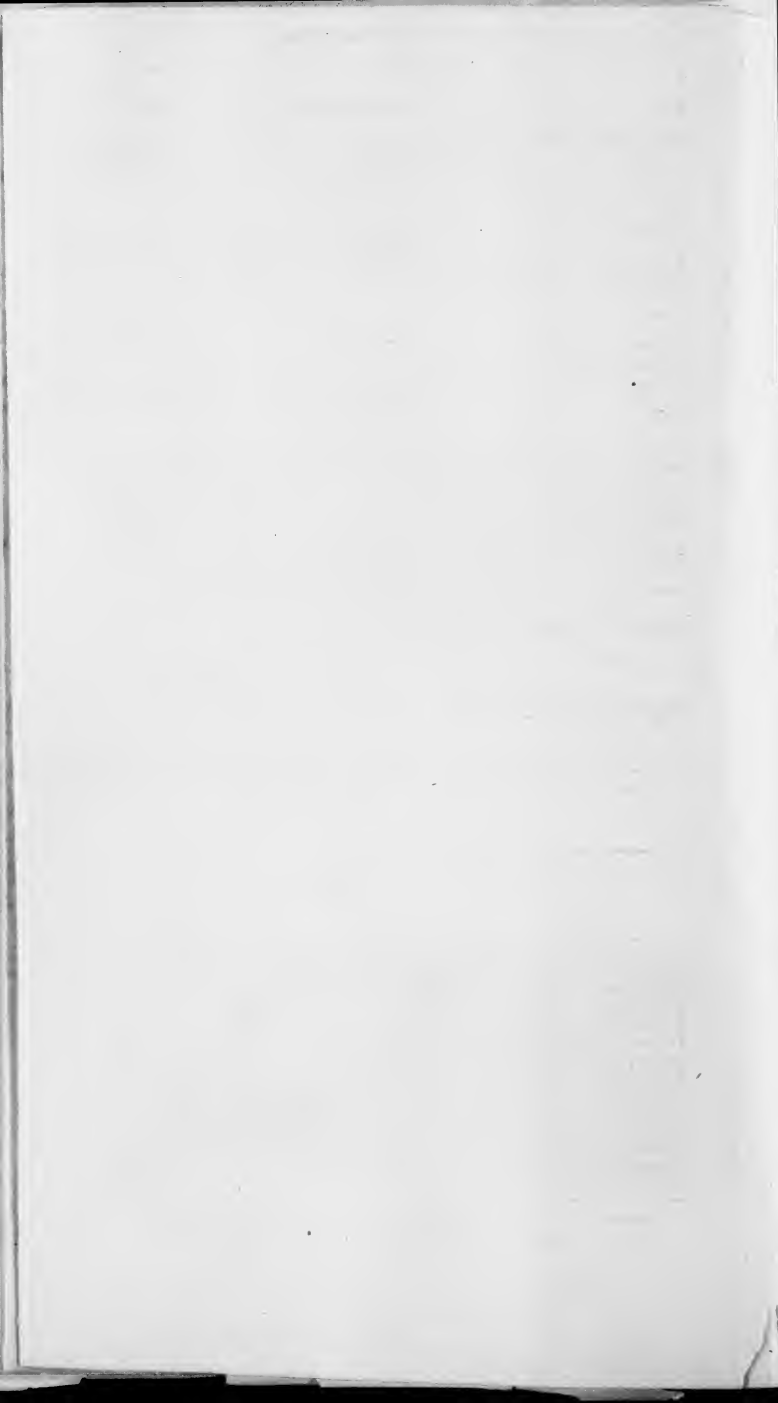


TABLE G.—Charges against street railroads.

WASHINGTON RAILWAY & ELECTRIC CO.

Street.	From—	To—	Section.	Amount.
<i>Work in connection with resurfacing and paving.</i>				
B.....	Delaware Avenue.....	First.....	Northeast.....	\$153.10
F.....	Fifth.....	Sixth.....	Northwest.....	59.50
F.....	Sixth.....	Seventh.....	do.....	74.81
F.....	Ninth.....	Fourteenth.....	do.....	657.56
G.....	New Jersey Avenue.....	Fifth.....	do.....	1,520.37
M.....	Wisconsin Avenue.....	Thirty-sixth.....	do.....	7.39
Missouri Avenue.....	Four-and-a-half.....	Sixth.....	do.....	184.40
New York Avenue.....	North Capitol.....	M.....	do.....	946.93
North Capitol.....	M.....	N.....	do.....	281.72
Q.....	Tenth.....	Vermont Avenue.....	Northwest.....	87.37
R.....	Eleventh.....	do.....	do.....	20.92
Second.....	do.....	II.....	do.....	52.32
Third.....	do.....	do.....	do.....	46.92
Fourteenth (east side).....	C.....	D.....	do.....	95.38
Fourteenth (west side).....	B.....	do.....	do.....	274.47
				4,463.16

Minor repairs on various streets.

2,527.16 cubic feet binder, at 25 cents.....	\$631.79	
2,692 cubic feet surface, at 44 cents.....	1,184.48	
1,008 cubic feet surface, at 67 cents ¹	675.36	
		2,491.63
		6,954.79

¹ Heater work.

CAPITAL TRACTION CO.

<i>Work in connection with resurfacing and paving.</i>				
M.....	Wisconsin Avenue.....	Thirty-sixth.....	Northwest.....	\$849.38
Pennsylvania Avenue.....	Eleventh.....	Thirteenth.....	Southeast.....	12.43
Thomas Circle.....	do.....	do.....	do.....	1,146.75
Washington Circle.....	do.....	do.....	do.....	1,017.62
Fourteenth (west side).....	Fairmont.....	Park Road.....	do.....	423.22
Fourteenth (east side).....	Florida Avenue.....	Clifton.....	do.....	190.36
Do.....	Thomas Circle.....	N.....	do.....	51.60
				3,691.36

Minor repairs on various streets.

3,614.90 cubic feet binder, at 25 cents.....	\$903.72	
4,008 cubic feet surface, at 44 cents.....	1,763.52	
101 cubic feet surface, at 67 cents.....	67.67	
		2,734.91
		6,426.27

WASHINGTON, ALEXANDRIA & MOUNT VERNON CO.

<i>Work in connection with resurfacing and paving.</i>				
Fourteenth (east side).....	C.....	D.....	do.....	\$10.04
Fourteenth (west side).....	B.....	D.....	do.....	67.56
				77.60

Minor repairs.

222 cubic feet binder, at 25 cents.....	\$55.50	
280 cubic feet surface, at 44 cents.....	123.20	
		178.70
		256.30

TABLE G.—Charges against street railroads—Continued.

WASHINGTON, SPA SPRING & GRETTA CO.

Street.	From—	To—	Section.	Amount.
<i>Work in connection with resurfacing and paving.</i>				
Bladensburg Road (north of H).	\$16.11

TABLE H.—Work done by day labor, under the appropriation for "Repairs to streets, avenues, and alleys," from July 1, 1910, to June 30, 1911.

Brick sidewalk relaid.....	square yards..	14,508
Asphalt block repaved.....	do.....	7,195
Vitrified block paved.....	do.....	1,206
Vitrified block repaved.....	do.....	3,565
Cobble paved.....	do.....	7,163
Curb reset.....	linear feet..	1,436
Flag laid.....	do.....	1,107
Flag relaid.....	do.....	2,400
Granite block laid.....	square yards..	4,370
Asphalt tile relaid.....	do.....	1,360
Grading.....	cubic yards..	2,021
Graveling.....	square yards..	100
Cement walk repaired.....	do.....	2,188
Dangerous holes repaired.....		3,688
Labor.....		\$30,340.57
Material.....		2,718.71
Adjusting plumbing appurtenances.....		4,498.71
		<u>37,557.99</u>

2071	516 Butternut Street NW	Wm. K. Hill	20.00	40.00	(0.00)	18.84	.....	.....	61.35
2000	Alley, square 3008	H. R. Hovenstein and Jos. Paul	885.00	.....	(0.00)	.....	630.00	.....	1,991.53
2070	Alley, square 127	Ada S. Reed	.....	.....	.....	.....	41.50	.....	78.40
2073	19-0 Calvert Street NW	Mrs. Max Goldsmith	.....	3.00	.....	.....	.....	.....	3.99
2015	Round square 53, Washington Circle	T. F. Schneider	.....	891.23	306.40	630.20	.....	.....	1,733.81
2025	North side Ashmead Place from Connecticut Avenue to east line of lot 4	Saml. H. Edmonston	.....	.....	.....	140.51	.....	.....	105.69
2030	Canal Street side of square east of square 643	District Construction Co.	76.00	317.16	.....	374.42	.....	.....	815.12
2056	Half Street side of lot 55, square 143	do.	.....	94.99	13.00	107.96	.....	.....	237.63
2058	Kalorama Road, lot 194, square 2529	J. H. de Silhour	.....	330.25	.....	390.21	.....	.....	969.76
2060	West side of Warder Street, from Rock Creek Church Road to Quebec Street	Kennedy Bros.	.....	.....	.....	222	.....	.....	209.18
2064	South side Lamont Street, between Georgia and Sherman Avenues	Wm. K. Hill	.....	66.80	.....	.....	.....	.....	83.46
2065	South side Adams Street NW., front of lots 15, 16, 17, square 3123	Alex. Millar	43.00	80.03	.....	.....	.....	.....	122.12
2067	Tennessee Avenue NE., between D and E Streets	G. W. Baskman	.....	100.33	.....	.....	.....	.....	102.71
2072	3542 Warder Street NW	J. H. Barney	.....	30.37	.....	.....	.....	.....	39.96
2074	East side of North Capitol Street, Detroit to Evans Streets	Jos. Paul	.....	259.75	384.75	.....	.....	.....	406.50
2078	W Street side of lot 39, square 3118	A. D. Cobe	.....	89.26	24.31	111.03	.....	.....	149.32
2085	West side of Twenty-eighth Street, north of Q Street	Sallie Mackall	20.00	.....	95.00	.....	.....	110.00	75.00
2089	West side of Twenty-fourth Street, between Douglas and Evans Streets	Ira J. Baker	.....	.....	.....	345.50	.....	.....	102.11
2091	1328 G Street NW	S. J. Shoemaker	.....	60.00	.....	25.07	.....	.....	31.83
2100	1808 Adams Mill Road	Franklin T. Sanner	.....	1,380.48	.....	.....	.....	.....	53.87
2075	West side Connecticut Avenue, between Harrison and Keokuk	Thos. J. Fisher & Co.	.....	.....	.....	.....	.....	.....	1,738.25
2077	3131 M Street NW	S. M. Greenbaum	.....	44.33	.....	39.51	.....	.....	91.54
2079	122-128 Randolph Street NW	Geo. C. Humphrey	.....	431.00	.....	.....	.....	.....	55.99
2081	South side Keokuk Street, from Connecticut Avenue to Thirty-seventh Street	Allen E. Walker	.....	.....	.....	.....	.....	.....	538.53
2082	1330 Seventh Street NW	Chas. F. Platt	.....	25.61	29.25	.....	.....	.....	42.05
2083	South Carolina and Kentucky Avenue side lots 49-58, square 1089	Wm. Murphy	.....	388.06	9.28	215.92	.....	.....	631.50
2084	South side Otis Street NW., from Thirteenth west to alley	James B. McDonnell	.....	84.47	.....	.....	.....	.....	105.55
2087	North side Columbia Road east to Georgia Avenue	E. H. Gottwals	.....	56.27	.....	.....	.....	.....	70.81
2088	West side Nineteenth, between Lamont Street and Park Road	L. E. Breuninger	161.00	188.45	.....	250.78	.....	.....	613.08
2092	North side Rhode Island Avenue NW., between Second and Third Streets	Chas. E. Fairman	.....	43.27	.....	.....	.....	.....	54.06
2093	East side Sherman Avenue, between Lamont and Morton	Harry Wardman	.....	176.84	.....	.....	.....	.....	220.96
2098	West side Second Street NW., between Rhode Island Avenue and T Street	Geo. C. Hough	.....	145.72	.....	.....	.....	.....	151.78
2106	East side Sherman Avenue, between Lamont and Morton	T. L. Schultz	.....	36.53	.....	.....	.....	.....	45.64

TABLE I—Permit work, 1911—Continued.

Job No.	Location.	For whom done.	Grading. <i>Cu. yds.</i>	Cement sidewalk. <i>Sq. yds.</i>	Curb reset. <i>Lin. ft.</i>	Curb set.			Vitrified block paved. <i>Sq. yds.</i>	Brick sidewalk. <i>Sq. yds.</i>	Cost.
						6 by 20 inches. <i>Lin. ft.</i>	8 by 8 inches. <i>Lin. ft.</i>	Old. <i>Lin. ft.</i>			
2076	Thirty-sixth Street side, southwest corner Thirty-sixth and Ordway Streets.	C. H. Hastings.	.....	134.42	.....	.....	.....	.....	.....	.....	\$167.96
2080	East side Twenty-seventh Street NW, lots 50-55, square 2107.	Geo. C. Humphrey	.....	83.27	30.00	.....	.....	.....	.....	.....	110.97
2086	East side Twenty-eighth Street, south of Cathedral Avenue.	L. E. Breuninger.	26.00	66.67	.....	101.12	.....	.....	.....	.....	215.20
2094	South side Spring Road NW, Holmead to Fourteenth.	Harry Wardman.	.....	246.30	.....	.....	.....	.....	.....	.....	307.75
2095	Rhode Island Avenue NE., Lincoln Avenue to Summit.	.....do.....	.....	406.33	.....	.....	.....	.....	.....	.....	507.70
2097	46th Street NW.	Thos. W. Stubblefield.	22.00	64.76	.....	.....	.....	.....	.....	.....	91.30
2101	Tenth Street NW., between Louisiana Avenue and C Street.	Lewis Hopfenmaler.	.....	296.83	113.15	.....	.....	.....	.....	.....	332.42
2102	1328 Seventh Street NW.	B. F. Saul Co.	.....	27.43	10.50	.....	.....	.....	.....	.....	32.83
2103	East side Georgia Avenue, from Quebec to Rock Creek Church Road.	Kennedy Bros.	.....	117.26	15.55	104.67	.....	.....	.....	.....	362.75
2104	1324 Seventh Street NW.	B. F. Saul Co.	.....	27.69	21.20	.....	.....	.....	.....	.....	34.51
2106	South side of V Street NE., between Summit Place and Second Street.	Harry Wardman.	124.00	282.07	.....	.....	.....	.....	.....	.....	411.03
2110	1113 Seventh Street NW.	Frank Grier, sr.	.....	36.59	.....	.....	.....	.....	.....	.....	46.31
2111	South side Randolph Place, between First and Second.	Geo. C. Humphrey	.....	55.58	.....	.....	.....	.....	.....	.....	69.38
2112	Northwest corner Thirty-sixth and Morton Place.	Weaver Bros.	.....	128.58	.....	.....	.....	.....	.....	.....	100.66
2113	Northeast corner Sixth and C Streets NW	Tolman Laundry.	.....	65.00	.....	.....	.....	.....	.....	.....	81.21
			2,274.00	15,380.25	1,826.04	2,407.05	1,362.36	392.65	707.50	624.09	26,425.52

TABLE K.—Assessment work, 1911—Continued.

Job No.	Location.	Grading. Cu. yds.	Cement sidewalk. Sq. yds.	Curb reset. Lin. ft.	Curb set.			Vitrified block paved. Sq. yds.	Asphalt block paved. Sq. yds.	Brick sidewalk repaved. Sq. yds.	Granite block relaid. Sq. yds.	Cost.
					6 by 20 inches. Lin. ft.	8 by 8 inches. Lin. ft.	Old. Lin. ft.					
3133	Both sides Q Street SE., between Twenty-third and Twenty-fifth Streets.		783.47									\$978.94
3139	East side Eighth Street SE., between E and G Streets.		1,165.63	25.00								1,210.92
3140	North side G Street SE., between Sixth and Seventh Streets.		608.99	559.00	18.84							798.82
3141	East side Fourteenth Street SE., between E and G Streets.		152.33									155.95
3142	North side L Street SE., between Seventh and Eighth Streets.		320.86									334.15
3143	West side Fifteenth Street SE., between East Capitol and A Streets.		262.90	21.00		228.20						534.32
3145	North side E Street NE., from Twelfth to Thirteenth Street.	76.00	424.04	60.34	484.70							1,127.07
3146	South side C Street SE., between Third and Fourth Streets, and Fourth Street from C Street to North Carolina Avenue.		429.06	46.70	9.42							576.08
3148	South side B Street SE., between Thirteenth and Fourteenth Streets.		559.46									577.52
3151	West side S Street NE., from H to I Street.		292.22									301.25
3152	North side F Street NE., from Fifth to Sixth Street.		134.15									137.83
3153	Both sides E Street NE., between Fourth and Fifth Streets.		562.35	9.00								588.10
3154	North side F Street NE., from Thirteenth to Fourteenth Street.		348.35	139.80								390.13
3155	East side Eighth Street NE., between B and C Streets.		567.30	553.25								742.89
3156	East side Twelfth Street NE., from C to D Street.		505.30	172.00								557.62
3157	Both sides Sixth Street NE., from East Capitol to C Street.				23.55							2,192.49
3158	Both sides C Street NE., from Tenth to Eleventh Street.		1,692.95	1,624.00								465.43
3160	West side Ninth Street NW., between E and F Streets.		403.71	80.40	9.42							210.23
3161	North side F Street NW., between Thirteenth and Fourteenth Streets.		188.71									441.06
3162	North side F Street NW., between Eleventh and Twelfth Streets.		415.96									146.23
3163	North side F Street NW., between Twelfth and Thirteenth Streets.		140.19									421.04
3164	North side F Street NW., between Twelfth and Thirteenth Streets.		404.21									154.63
3175	North side Woodley Road, from Connecticut Avenue to alley west.		123.76									2,571.01
3176	Alleys, square 284.											776.89
3177	Around Washington Circle.	770.00	714.50						1,041.00			

TABLE K.—Assessment work, 1911—Continued.

Job No.	Location.	Grading.	Cement sidewalk.	Curb reset.	Curb set.			Vitrified block paved.	Asphalt block paved.	Brick sidewalk repaved.	Granite block relaid.	Cost.
					6 by 20 inches.	8 by 8 inches.	Old.					
		Cu. yds.	Sq. yds.	Lin. ft.	Lin. ft.	Lin. ft.	Lin. ft.	Sq. yds.	Sq. yds.	Sq. yds.	Sq. yds.	
3028	Seventeenth Street NE., between Jackson and Lawrence Streets	52.00	221.47									\$286.95
3042	Both sides of Eighth Street NE., between L Street and Florida Avenue		91.37									116.26
3043	Both sides of Eighth Street NE., between K and L Streets		132.38	21.92	309.40							482.90
3054	East side of North Capitol Street, between C Street and West side of Jackson Avenue					1,240.12						1,460.97
3055	West side of North Capitol Street, between G and G Streets					1,659.05						1,774.59
3144	Both sides of Myrtle Street NE., between North Capitol and First Streets		1,054.36	1,676.50								1,504.51
3149	Both sides of New York Avenue NE., between North Capitol and First Streets		1,771.98	1,567.00				258.17				2,200.20
3165	Alleys in square east of 475	100.00										645.95
3206	South side of Florida Avenue NE., between Eleventh and Twelfth Streets		356.45									372.89
3208	North side of Florida Avenue NE., between West Virginia Avenue and Twelfth Street		989.42									1,035.09
3220	Twenty-first and Twenty-third Streets, between South side of Pennsylvania Avenue NW., between Florida Avenue and Twelfth Street		467.92									460.22
3287	East side of K Street NE., from Eighth to Ninth Streets		221.01		339.47							691.37
3297	South side of K Street NE., from Eighth to Ninth Streets		147.56	19.90	320.04							529.82
3373	South side of O Street NW., between Holmead Place and alley east		34.20									42.73
3379	East side of Holmead Place, between Monroe and Otis Streets		27.83									34.78
3384	North side of P Street NW., between Fourteenth and Fifteenth Streets		717.92									748.80
3250	Both sides of O Street NW., between Fifteenth and Sixteenth Streets		647.20									1,932.64
3016	Alleys, square 2206					985.97		1,086.00				2,192.36
3043	Both sides of Eighth Street NE., between K and L Streets	647.00	132.38	21.92	309.40							507.04
3098	Alley square 309							679.75				1,250.44
3107	Fourteenth Street NW. from Otis Street to Parkwood Place	320.00										299.75
3115	Both sides of O Street NW., between Sixteenth and Seventeenth Streets			14.00	18.84							1,285.52
3176	Alleys, square 2109	1,072.00							1,598.00			3,668.50

TABLE L.—Sidewalks and curbs, 1911.

Job No.	Location.	Cement sidewalk.	Curb reset.	Curb set.		Cost.
				6 by 20 inches.	8 by 8 inches.	
		Sq. yards.	Linear feet.	Linear feet.	Linear feet.	Lin. feet.
2500	Reservation 323.....	80.18	5.50	96.10	.....	\$211.55
2501	Hilton School, Sixth Street NE., between B and C Streets.....	107.16	100.00	4.71	.....	430.99
2502	Anthony Hyde School, O Street NW., between Thirty-second and Thirty-third Streets.....	399.89	280.40	.....	6.8	481.88
2503	O Street side reservation 182, New York Avenue and O Street NE.....	111.45	12.90	.....	.....	120.51
2504	Manual Training School, P Street NW., between First and Third Streets.....	.....	.....	.....	.....	40.84
2506	Reservation 126, between Virginia and Potomac Avenues, Ninth and Eleventh Streets SE.....	344.22	170.00	.....	.....	303.11
2510	South side of North Carolina Avenue SE., between Sixth and Seventh Streets.....	333.27	279.00	.....	.....	384.65
2511	School, west side Sixth Street NW., between Howard and Trumbull Streets.....	109.74	.....	184.67	.....	341.86
2512	Bryan School, B Street SE., between Thirteenth and Fourteenth Streets.....	298.21	.....	.....	.....	291.60
2514	Strong J. Thompson School, L Street side.....	108.03	.....	.....	.....	163.83
2515	B. B. French School, south side G Street SE., between Sixth and Seventh Streets.....	72.99	75.00	.....	.....	88.17
2521	Reservation 138, New Hampshire Avenue and Twenty-second Street NW.....	165.14	71.00	.....	91.95	293.54
2522	Reservation 26, Washington Circle.....	.....	.....	.....	1,636.44	2,289.96
2513	South side of Prout Street, between Twenty-second and Nicholson Streets.....	40.53	.....	.....	.....	48.23
2526	.....	2,230.81	993.80	285.48	1,728.39	5,254.94
						6.8

TABLE M.—Miscellaneous work, 1911.

Job No.	Location.	Appropriation.	Grading. <i>Cu. yds.</i>	Cement sidewalk. <i>Sq. yds.</i>	Curb reset. <i>Lin. ft.</i>	Curb set.		Brick sidewalk relaid. <i>Sq. yds.</i>	Granite block relaid. <i>Sq. yds.</i>	Cobble relaid. <i>Sq. yds.</i>	Macadam relaid. <i>Sq. yds.</i>	Asphalt block relaid. <i>Sq. yds.</i>	Terra-cotta pipe. <i>Lin. ft.</i>	Cost.
						6 by 20 inches. <i>Lin. ft.</i>	8 by 8 inches. <i>Lin. ft.</i>							
1401	Twenty-seventh Street NW. between N and Olive Streets.	Georgetown schedule.												\$15.50
156	V Street NW. between Twelfth and Thirteenth Streets.	Northwest schedule.						500.00						97.00
1503	Neal Place.	Northwest schedule.							82.00			2,939		1,100.64
1504	Both sides Neal Place between Fourth and Fifth Streets.	Northwest schedule.					1,408.30							1,688.03
1506	Both sides V Street NW. between Twelfth and Thirteenth Streets.	Northwest schedule.					847.07							1,014.12
1507	V Street NW. between Twelfth and Thirteenth Streets.	Northwest schedule.						225.00						81.61
1600	I Street SW. between First and Second Streets.	Southwest schedule.						100.00	270.00		25.00			183.00
1602	Maine Avenue SW. between Four-and-a-half and Sixth Streets.	Southwest schedule.	10.00	15.00				50.00						43.25
1603	South side Maine Avenue SW. between Four-and-a-half and Sixth Streets.	Southwest schedule.				605.76	18.58							815.39
1700	Twelfth Street SE. between Pennsylvania Avenue and I Street.	Southeast schedule.				1,656.65								2,088.59
1703	Both sides B Street SE. between Thirteenth and Fourteenth Streets.	Southeast schedule.				1,177.64								1,502.21
1803	Florida Avenue NE. between Ninth and Thirteenth Streets.	Northeast schedule.						341.00		47.30				127.26
5022	South side D Street NW. between Seventh and Eighth Streets.	Asphalting D Street NW. between Seventh and Eighth Streets.					198.28							288.52
6002	Johnson School.	8-room annex to Johnson School, 1909.												9.19
6017	California Street NE. between Second and Plaza.	Elimination grade crossings.	2,346.00						631.00	1,715.0				3,276.31

5212	Twenty-fourth Street N.E., Rhode Island Avenue to Irving Street.	Grade and Improve Twenty-fourth Street N.E., Rhode Island Avenue to Irving Street.	75.00							360.13
6006	Delaware Avenue N.E. between D Street and Plaza.	Elimination of grade crossings.						438		700.12
6013	West Virginia Avenue north of Florida Avenue.	Elimination of grade crossings.								1,335.25
6030	Alley, square 4070.	Elimination of grade crossings.								104.12
6040	District property yard, east side of Sixth Street north of I Street.	Elimination of grade crossings.								1,005.62
6050	Branch of alley terminating at lot 6, square 630.	Elimination of grade crossings.						317		752.15
5042	Fourth Street N.E. between W and Rhode Island Avenue.	Macadamize Fourth Street N.E.				154.10				155.31
2602	Ridge Road (olling).	Care and Improvement of Rock Creek Park.								666.66
2603	Beach Drive (building bridge)	Care and Improvement of Rock Creek Park.								634.92
2604	Reservoir Road (macadamize).	Care and Improvement of Rock Creek Park.								3,436.86
2605	Rock Creek Park near Kennedy Street (building bridge).	Care and Improvement of Rock Creek Park.								1,555.93
2601	Rock Creek Park (build shed).	Care and Improvement of Rock Creek Park.								118.44
5221	Varnum Street NW, from Georgia Avenue to Eighth Street.	Grade and Improve Varnum Street NW.								439.56
6005	Plaza in front Union Station.	Elimination grade crossings.								29,959.72
6007	North Capitol Street between C and G Streets.	Elimination grade crossings.						18,000 8,618		13,014.04
6029	District sand and gravel wharf.	Various appropriations.								930.44
6035	First Street N.E. between Plaza and G Street.	Elimination grade crossings.				90.00				3,904.08
5070	Kearney Street N.E. Thirteenth to Eighteenth Streets.	Grade Kearney Street.						2,226		1,537.43
5141	Otis Street NW, between Thirteenth and Fourteenth Streets.	Grade and Improve Otis Street.								388.37
5151	Quincy Street NW, from Fifth to Seventh Streets.	Grade and Improve Quincy Street.								598.80
5181	Seventeenth Street N.E., Newton to Hamlin Streets.	Grade and Improve Seventeenth Street N.E.								286.75
5191	Third Street and Marlboro Place NW.	Grade and Improve Third Street and Marlboro Place.								241.12
6008	Vicinity of Union Station.	Elimination grade crossing.								376.62

TABLE M.—Miscellaneous work, 1911—Continued.

Job No.	Location.	Appropriation.	Grading. <i>Cu. yds.</i>	Cement sidewalk. <i>Sq. yds.</i>	Curb reset. <i>Lin. ft.</i>	Curb set.		Brick sidewalk relaid. <i>Sq. yds.</i>	Granite block relaid. <i>Sq. yds.</i>	Cobble relaid. <i>Sq. yds.</i>	Macadam relaid. <i>Sq. yds.</i>	Asphalt block relaid. <i>Sq. yds.</i>	Terra-cotta pipe. <i>Lin. ft.</i>	Cost.
						6 by 20 inches. <i>Lin. ft.</i>	8 by 8 inches. <i>Lin. ft.</i>							
6009	New Jersey Avenue S.E. between E and I Streets.	Elimination grade crossing.		<i>Sq. yds.</i>	<i>Lin. ft.</i>		<i>Lin. ft.</i>	<i>Sq. yds.</i>	<i>Sq. yds.</i>	<i>Sq. yds.</i>	<i>Sq. yds.</i>	<i>Sq. yds.</i>	<i>Lin. ft.</i>	\$265.00
6041	Construct hoppers at District sand wharf.	Contingent and miscellaneous expenses, 1911.												685.59
6044	First Street N.E. between Plaza and baggage room.	Elimination grade crossings; improvement of Plaza.												108.89
			2,431.00	15.00	90.00	3,440.05	3,116.03	1,246.00	980.00	1,777.3	60.00	32,538	459.00	80,373.26

TABLE N.—Whole cost work, 1911.

Job No.	Location.	For whom done.	Cement sidewalk laid.	Brick sidewalk laid.	Curb reset.	Curb set.			Terra-cotta pipe.	Vitrified block.	Asphalt tile.	Asphalt block.	Cost.
						6 by 20 inches.	8 by 8 inches.	Old.					
			Sq. yds.	Sq. yds.	Lin. ft.	Lin. ft.	Lin. ft.	Lin. ft.	Lin. ft.	Sq. yds.	Sq. yds.	Sq. yds.	
6001	Harwood Road NE, corner Soldiers' Home.	Soldiers' Home.											\$84.61
6020	Both sides Everts Street NE, from North Capitol to Glenwood Cemetery.	Jos. Paul.						653					137.55
6023	North side of W Street NW, between North Capitol and First.	H. L. Rust and W. J. Brown.						391					82.50
6024	421-425 Eighth Street NW.	Lansburgh Bros.								66.50			116.49
6026	324 B Street SW.	C. Thompson.		9	38					35			69.44
6032	515 Ninth Street NW.	Eng. Wah.	21.52								2.50		1.50
6037	Twentieth Street NW, north of I Street.	A. Ford.			100							372	628.91
6043	Coincidental Hotel, North Capitol, between C and D Streets.	Saml. J. Prescott & Co.					18.84						25.00
6045	South side of W Street NW, between North Capitol and First.	W. J. Brown.						437					98.00
6018	Repairing walks various streets.	Retent Coburn Paving Co.	31		91								47.06
6053	West side Connecticut Avenue, between Fessenden and Harrison Streets. ¹	Thos. J. Fisher Co.											300.53
6059	1419 Irving Street NW.	John O. Gheen.	4										3.75
6042	Intersection of Georgia Avenue and Kennedy Street.	B. & W. Transit Co.											194.71
			56.52	9	229		18.84	1,431	132.50	101.50	2.50	372	1,790.05

¹ Extending culvert.

TABLE O.—Number of square yards and cost charged for repairs to cuts made by plumbers and others in streets, avenues, and alleys during the fiscal year ended June 30, 1911.

Item No. 1 shows the number of cuts repaired for various plumbers.

Item No. 2 shows the number of cuts repaired and the cost thereof on "whole cost" work, to which 5 per cent is added for tools, clerk hire, etc., for the maintenance of the miscellaneous trust fund deposits, District of Columbia (operating account), which fund is used to pay all accounts for labor, materials, tools, etc., used in this class of work, and also includes the work done for gas, electric light, and telephone companies, which work is charged at other than the flat rates charged to plumbers.

Item No. 3 shows the number of cuts repaired on account of sewer department and the cost of same.

Item No. 4 shows the number of cuts repaired on account of the water department and the cost of the same.

Item No. 5 shows the number of cuts repaired for work done on account of other appropriations of the District of Columbia and the cost of the same; also the cost of work charged against retents and appropriations of the general government.

	Number.	Square yards.	Cost (amount charged).
Item No. 1.—Plumbers' cuts:			
Sheet asphalt.....	577	1,188.73	\$3,863.37
Granite block.....	143	512.75	769.12
Asphalt block.....	283	1,361.92	2,042.88
Vitrified block or brick.....	267	607.17	1,517.93
Cobble and rubble.....	139	390.77	234.46
Macadam.....	516	1,991.83	1,532.83
Granolithic walks.....	552	822.72	1,851.12
Brick sidewalks.....	673	¹ 17,449.00	872.45
Bricks furnished.....		¹ 12,217.00	122.17
Asphalt blocks furnished.....		¹ 1,370.00	102.75
Vitrified blocks furnished.....		¹ 9,072.00	181.44
Cuts repaired at actual cost plus 5 per cent.....	(?)	(?)	316.86
	3,150	6,875.89	13,407.38
Item No. 2.—Railroad, electric-light company, telephone company, and other corporations and individual depositors, account of whole cost work.....			
Item No. 3.—Various appropriations of the sewer department.....	4,111	43,211.64	70,589.72
Item No. 4.—Various appropriations of the water department.....	425	8,523.11	8,218.90
Item No. 5.—Various appropriations other than the above, including repairs to streets, roads, street lighting, electrical department, improvements and repairs, assessment and permit work, elimination of grade crossings, contingent and miscellaneous expenses, parking commission, etc.....	1,312	16,704.27	14,730.27
	460	4,562.18	11,612.03
	9,458	79,877.09	118,558.30

¹ Feet, and not included in total number of square yards.

² Included in number of macadam cuts.

TABLE P.—Grading streets, alleys, and roads, 1911.

Job No.	Location.	Grading.	Cost.
		<i>Cu. yds.</i>	
1902	Butternut Street, between Piney Branch Road and Third Street.....	1,742	\$332.62
1903	Sixth Street NW., Aspen to Butternut Street.....	1,280	318.88
1904	Piney Branch Road, between Butternut and Blair Road.....	2,340	553.25
1905	Brown Street NW., between Thirty-second Street and Wisconsin Avenue.....	1,133	268.75
1906	Alley, square 1858.....	2,267	346.56
1907	Eastern Avenue, between Minnesota Avenue and Nash Street.....	5,603	520.25
1908	Various streets, northeast and southeast sections.....	2,150	453.17
1909	Twenty-sixth Street NE., Irving to Hamlin Streets.....	1,680	164.50
1911	Montana Avenue, south of Rhode Island Avenue.....	1,800	264.43
1912	Quincy Street NE., between Thirtieth and Fourteenth Streets.....	1,152	392.64
1913	Lawrence Street NE., between Twentieth and Twenty-second Streets.....	1,000	98.62
1914	Kearney Street NE., between Twentieth and Twenty-second Streets.....	2,080	199.25
1916	Twelfth Street NE., between Euclid and Clifton Streets.....	964	269.00
1917	Fifth Street NW., between Kennedy and Longfellow Streets.....	532	103.00
1918	Fort Drive NE., between Seventeenth and Eighteenth Streets.....	840	121.12
1920	C Street NE., Fourteenth to Fifteenth Streets.....	964	222.74
1921	Thirty-second Street north of R Street, to Home for Incurables.....	2,610	319.43
1931	Thirty-second Street NW., between R and S Streets.....	667	254.87
1933	Twenty-sixth Street north of M Street.....	334	33.13
1935	Bladensburg Road.....	1,584	484.56
1936	Hamlin Street NE., between Sixteenth and Seventeenth Streets.....	2,548	176.25
1937	Neal Place NW., between Fourth and Fifth Streets.....	513	163.88
1944	Kalamazoo Road, from end of asphalt to Twenty-third Street.....	1,470	281.25
1939	Columbia Road NW., west of Warder Street.....	2,842	659.42
1943	C Street NW., between Seventeenth and Eighteenth Streets.....	842	251.00

TABLE P.—Grading streets, alleys, and roads, 1911—Continued.

Job No.	Location.	Grading.	Cost.
		<i>Cu. yds.</i>	
1948	Seventeenth Street NE., Rosedale to Gales Streets	40	\$16.00
1910	Hobart Place NW., between Georgia Avenue and Fifth Street	3,376	394.81
1915	Decatur Street, west of Sixteenth Street	6,784	1,487.60
1930	Upton Street, east of Connecticut Avenue	2,828	441.38
1938	Various streets (sidewalks)	3,460	578.31
1940	Kenyon Street NW., between Sixth Street and Park Road	4,742	897.01
1942	Third Street NW., south of Rittenhouse Street	313	109.62
1945	Alley, square 2979		76.50
1951	East side Bladensburg Road from L to M Streets	2,500	1,060.37
1952	Fourteen-and-a-half Street NE., between C and D Streets	3,916	1,146.31
1953	Wisconsin Avenue, between Macomb and Newark Streets		257.62
Total			13,718.10

REPORT OF THE SUPERINTENDENT OF STREET CLEANING.

WASHINGTON, D. C., *September 21, 1911.*

SIR: I have the honor to submit the following report of the street-cleaning division of the engineer department of the District of Columbia for the fiscal year ending June 30, 1911.

The division of street cleaning serves a population of about 331,000 and covers an area of about 70 square miles.

CONTRACT WORK.

Throughout the year the following work has been done by contract under the direction of this division:

Machine cleaning.—The sprinkling, sweeping, and cleaning of the paved carriage-ways of such streets and avenues in the District of Columbia as the commissioners may from time to time designate.

Under this contract, in the fiscal year 1911, all the paved streets outside of the hand patrol section were cleaned about three times per week, the area cleaned amounting to about 2,500,000 square yards.

Alley cleaning.—The sprinkling, sweeping, and cleaning of such of the public alleys in the District of Columbia as the commissioners of said District may from time to time designate.

Each paved alley in the city was cleaned about once a week. The total area of alleys cleaned is about 985,159 square yards.

Unimproved street cleaning.—The cleaning of all unpaved streets within the city of Washington and such other unpaved streets as are not taken care of by the county.

The entire area amounts to about 905,000 square yards, and each street was cleaned about once in every 10 days.

Garbage.—The collection and disposal of garbage daily, including Sundays, from such hotels, apartment houses, markets, and other like places within the city of Washington and such of its suburban sections as may be designated from time to time by the Commissioners of the District of Columbia.

The collection and disposal of garbage daily, excluding Sundays, from May 16 to October 15, both days inclusive, and three times a week from October 16 to May 15, both days inclusive, from all places not embraced in the preceding paragraph within the existing fire limits of the District of Columbia and certain of the more thickly populated sections on the outside of and adjacent to the fire limits.

The collection and disposal of garbage three times a week from May 16 to October 15, both days inclusive, and semiweekly from October 16 to May 15, both days inclusive, from all places not included in the preceding paragraphs in the city of Washington and its suburbs as said suburbs may from time to time be designated by the Commissioners of the District of Columbia.

The collection of garbage is made in wagons carrying a covered iron box which is lifted from the wagons and loaded on cars at the transfer station. This box containing the garbage is then shipped by rail to the disposal plant owned by the contractor, located about 32 miles from Washington, and the garbage is there disposed of by the reduction process.

Ashes.—The collection and disposal of ashes within the existing fire limits of the District of Columbia and certain of the more thickly populated sections outside of

and adjacent to the fire limits weekly from April 16 to October 31, inclusive, and semiweekly from November 1 to April 15, inclusive, from private residences, boarding houses, lodging houses of not to exceed 25 rooms, and apartment houses containing not to exceed four families, and other like places, as may be designated by the Commissioners of the District of Columbia.

The collection and disposal of ashes from all private residences and such other like places corresponding to those included in the preceding paragraph from the remainder of the city of Washington and its suburban sections, as said suburban sections may from time to time be designated by the Commissioners of the District of Columbia, weekly throughout the entire year.

The collections are made in wagons with canvas covers and disposed of by filling low ground on the outskirts of the city.

Refuse.—The collection and disposal of miscellaneous refuse, in the city of Washington and its more densely populated suburbs, as such suburbs may from time to time be designated by the Commissioners of the District of Columbia, once a week from all private residences, boarding houses, and lodging houses with not to exceed 25 rooms, and apartment houses containing not to exceed four families, and other like places, as may be designated by the Commissioners of the District of Columbia, and from such public waste boxes as may be established by the street-cleaning division in the machine-swept section of the city and District.

The collections are made in wagons suitable for this purpose and what is not salable is disposed of at an incinerating plant owned by the contractor.

Dead animals.—The collection and disposal of dead animals daily, including Sundays, throughout the year, from every part of the District of Columbia upon notification to the contractor of the existence of said dead animals.

The collections are made in vehicles suitable for the purpose, and the disposal is accomplished by the reduction process at a plant owned by the contractor located about 4 miles from the city.

Night soil.—The collection and disposal of night soil from all privies, except such as are established by contractors on construction work, and from all streets, avenues, alleys, roads, and open lots in the District of Columbia upon receipt of notice from the superintendent of street cleaning.

The collections are made in air-tight receptacles designed for that purpose and transported therein on barges about 8 miles from the city and there used as fertilizer on a farm.

Ashes from public buildings.—The collection and disposal of ashes and refuse from buildings under the control of the Commissioners of the District of Columbia as such may accumulate.

This work is done by contract under the direction of this division but paid for from the appropriation for the maintenance of each building in proportion to the quantity removed.

DAY LABOR WORK.

Throughout the year the following work was done under the immediate direction of this division:

Hand patrol.—The cleaning by hand patrol of all the streets in the central portion of the city, amounting to about 1,877,000 square yards, before May 26, and about 2,005,000 square yards after May 26, which was cleaned every day, except Sundays and holidays, weather permitting. In this daily cleaning the streets were actually gone over about three times.

Sprinkling.—The sprinkling of about 60 or 70 miles of unpaved streets within the city and such streets outside of the city as are not sprinkled by the division of county roads.

GENERAL.

The inspectors of the collection and disposal of city waste made investigations during the fiscal year of complaints and requests in number as follows: Garbage, 806; ash, 1,835; refuse, 7,469; night soil, 5,068. They furnished householders with regulation cards to the number of 6,558, served 3,045 unlawful garbage receptacle notices, and visited 67,609 houses.

From September 15, 1910, to November 28, 1910, an extra machine-sweeping gang was put to work in certain machine-swept sections of the northwest and northeast, where the fall of leaves was heaviest, thereby sweeping these sections every day instead of every other day, as is the regular custom. This gang consisted of 4 machines, 5 broomers, and 5 carts.

On June 22, 1910, a contract was awarded to Bidgood Bros. to purchase from the District of Columbia all street sweepings from the hand-swept section of the city for 27½ cents per ton.

Sweepings were delivered to Bidgood Bros. from July 1 to October 31, 1910, to the amount of \$811.51, after which, at the request of Bidgood Bros., this contract was annulled, as the District of Columbia found that these sweepings could be used to a better advantage as fertilizer in connection with the developments at Occoquan, and throughout the balance of the year these sweepings were sent to Occoquan.

After experimenting for nearly a year with a Kindling squeegee machine, two more were ordered and received in September, 1910, and another one in January, 1911. Two sanitary flushing machines were received in October, 1910. These washing machines were put in regular operation in the hand-patrol section of the city, an area of about 1,877,000 square yards.

Each gang of squeegees consisted of one sprinkler with three or four squeegees. The sprinkler operated some distance ahead of the squeegees to allow the dirt which had become baked and stuck to the pavement to be softened by the absorption of moisture and easily dislodged by the squeegees.

From September 24 to April 25 each machine averaged 56,259 square yards per day of 8 hours.

On April 26 the hand-patrol area was enlarged to about 2,005,000 square yards, without increasing the hand-patrol force, and a gang of 1 sprinkler and 4 squeegees operated over this area for 16 hours each day, each squeegee averaging 64,212 square yards per day of 8 hours. By this method the hand-patrol area was cleaned by squeegees about one and one-half times per week.

The hand-patrol section consists largely of sheet asphalt or asphalt block pavement, smooth enough to allow the operation of the squeegee machines to an advantage. On streets paved with granite block or cobble the two flushing machines are used.

From October 14 to July 1 each flushing machine averaged 21,171 square yards for each day of 8 hours which they worked.

Under the above system of street washing it is found that the streets are almost entirely free from dust. Any dirt which may accumulate does not have time to be pulverized and the particles are too heavy to be disturbed or blown about by an ordinary wind. Under the old method of sweeping these heavier and coarser particles were removed, but most of the dust remained, to become a source of annoyance when disturbed by the wind or rapidly passing vehicles, although the streets might have appeared to the eye to be clean.

On January 24, 1910, the street-cleaning department was transferred from the charge of Commissioner John A. Johnston to the charge of Commissioner William V. Judson and became a division of the engineer department.

In times of snow and ice it has been the practice in preceding years to clean the principal street-car intersections and the crosswalks. In addition to this, in the past year, spaces adjacent to street-car stopping points were cleaned so as to afford access from the cars to the crosswalks.

In order to have this done before the opening of business hours, the men commenced work earlier in the morning than in preceding years. At the same time the horses left the stable with sidewalk plows, this being the first winter that this service was attempted with regularity.

After most of the snow was removed from the sidewalks to the gutters, the horse-drawn gutter plows were used to open the gutters so the water could run off as the snow melted.

After the above operations the men were employed in opening spaces from the center of the street to the gutters, spreading the snow in sunny places, and otherwise assisting the snow to melt and the water to run off to the sewers.

No attempt was made to haul snow and ice from the streets, except from the intersection of street-car lines and other congested or crowded localities.

While the city of Washington is subjected to a good many snowstorms, very few of them are severe, and the climate is such that during the greater part of the winter the snow melts very rapidly. After February 1 of this year there were five snowstorms averaging from 3 to 5 inches in depth, and in each case within three or four days, with the assistance which this division was able to give it, at a comparatively small cost, the snow had entirely melted. To have hauled this snow from the streets would have required nearly the same length of time and an enormous expenditure of money.

The acts of Congress approved March 2, 1911, making appropriations for the expenses of the District of Columbia for the fiscal year ending June 30, 1912, authorized the commissioners to perform certain work previously done under contract, namely, street sweeping and cleaning alleys and unimproved streets and provided \$40,000, to be immediately available for the purchase of new equipment to be used in this service, and also provided for the purchase of a site or sites and for the erection of a building or buildings thereon for a stable and storerooms for this division and appropriated \$128,600 to be immediately available for these purposes.

Between March 2 and July 1 from the appropriation of \$40,000 equipment to the amount of \$24,404.40 was purchased.

After considering a number of sites and arrangements for stables, it was decided to remodel the present stables in square 367 so as to have a modern sanitary and fire-proof stable and to purchase certain portions of square 1043 on which to erect a new stable and storerooms.

Your attention is called to the detailed information and statements of appropriations and expenditures appended.

Very respectfully,

J. W. PAXTON,
Superintendent of Street Cleaning.

The ENGINEER OF HIGHWAYS.

SPRINKLING, SWEEPING, AND CLEANING STREETS.

WORK DONE UNDER THE IMMEDIATE DIRECTION OF THE COMMISSIONERS.

Hand-patrol work.

Number of days worked.....	276½
Number of men employed per day.....	195
Area cleaned, square yards.....	536, 897, 423
Number of loads hauled.....	7, 161
Cubic yards of debris removed, 4 cubic yards to a wagonload.....	28, 644
Tons of debris removed.....	14, 322
Total cost.....	\$94, 134. 48
Cost per thousand square yards.....	\$0. 1753

Comparative statement showing cost of handwork from 1905 to 1911.

Year.	Square yards cleaned.	Cost.	Cost per 1,000 square yards.
1905.....	430, 216, 853	\$80, 108. 24	\$0. 1862
1906.....	495, 192, 074	88, 337. 05	. 1785
1907.....	497, 811, 216	90, 675. 05	. 1824
1908.....	489, 528, 820	80, 110. 43	. 1896
1909.....	500, 549, 957	93, 280. 73	. 1863
1910.....	543, 088, 777	96, 610. 13	. 1778
1911.....	536, 897, 423	94, 134. 48	. 1753

Squeegees.

Number of days worked.....	195
Area cleaned, square yards.....	50, 012, 859
Total cost.....	\$5, 814. 57
Cost per thousand square yards.....	\$0. 1162

Flushing.

Number of days worked.....	132
Area cleaned, square yards.....	5, 589, 367
Total cost.....	\$1, 765. 12
Cost per thousand square yards.....	\$0. 3157

Sprinkling.

Number of 2-horse sprinklers in use.....	12
Number of days worked.....	206½
Number of miles sprinkled.....	60 to 70
Number of gallons of water used.....	1, 800, 000
Cost.....	\$13, 233. 59

Public dumps.

Number of days worked.....	313
Number of dumpmen.....	7
Loads of street sweepings and refuse received.....	76, 041
Loads of dirt and other refuse.....	27, 960
Loads of ashes.....	67, 126

Snow and ice work.

Number of days worked.....	22
Total cost.....	\$12,632.16

Comparative statement showing cost of snow and ice work from 1906 to 1911.

Year.	Number of days worked.	Total cost.
1906.....	8	\$2,871.88
1907.....	(1) 6	2,505.78
1908.....	6	1,307.07
1909.....	13	8,217.36
1910.....	9	4,220.73
1911.....	22	12,632.16

¹ No record.

WORK DONE BY CONTRACT IN CONNECTION WITH STREET AND ALLEY CLEANING.

Machine sweeping.

Number of days worked.....	258
Area cleaned, square yards.....	367,242,484
Number of loads hauled.....	21,336
Cubic yards of debris removed, 2 cubic yards to a cartload.....	42,672
Tons of debris removed.....	21,336
Net cost.....	\$83,547.67
Contract price per thousand square yards.....	\$0.224

Comparative statement showing cost of machine work from 1905 to 1911.

Year.	Square yards cleaned.	Net cost.	Contract cost per 1,000 square yards.
1905.....	323,337,975	\$54,361.18	\$0.1644
1906.....	299,313,747	50,322.12	.1677
1907.....	373,029,844	84,864.29	.2275
1908.....	423,398,395	96,323.13	.2275
1909.....	453,052,163	109,069.35	.2275
1910.....	435,397,855	99,053.02	.2275
1911.....	367,242,484	83,547.67	.2275

Public alleys.

Number of days worked.....	2504
Area cleaned, square yards.....	38,396,138
Number of loads hauled.....	5,637
Cubic yards of debris removed, 1½ cubic yards to a cartload.....	8,455
Tons of debris removed.....	5,637
Net cost.....	\$15,358.44
Contract price per thousand square yards.....	\$0.40

Comparative statement showing cost of alley work from 1905 to 1911.

Year.	Square yards cleaned.	Net cost.	Contract cost per 1,000 square yards.
1905.....	33,232,290	\$11,631.30	\$0.35
1906.....	39,557,254	13,845.04	.35
1907.....	44,131,505	17,652.60	.40
1908.....	48,040,371	19,216.15	.40
1909.....	51,782,270	20,712.91	.40
1910.....	50,532,192	20,212.85	.40
1911.....	38,396,138	15,358.44	.40

Unimproved streets.

Number of days worked.....	275
Area cleaned, square yards.....	40, 194, 274
Number of loads hauled.....	13, 621
Cubic yards of debris removed, 1 cubic yard to a cartload.....	13, 621
Tons of debris removed.....	13, 621
Contract price per day for full force.....	\$73.80
Contract cost.....	\$17, 006.26
Contract cost per thousand square yards.....	\$0.4231

Comparative statement showing cost of cleaning unimproved streets, 1905-1911.

Year.	Square yards cleaned.	Contract cost.	Cost per 1,000 square yards.
1905.....	22, 681, 544	\$15, 892.99	\$0.7007
1906.....	34, 515, 843	16, 606.60	.4954
1907.....	31, 007, 419	17, 708.32	.5865
1908.....	35, 038, 965	18, 390.90	.5391
1909.....	36, 067, 409	17, 640.36	.5024
1910.....	39, 683, 516	17, 437.01	.4514
1911.....	40, 194, 274	17, 006.26	.4231

DISPOSAL OF CITY WASTE.

Garbage.

Tons of garbage collected.....	48, 214
Contract price per annum.....	\$68, 400.00
Deductions for neglect.....	0.00
Cost (net).....	68, 400.00

Comparative statement showing the cost of the garbage service from 1907 to 1911.

Year.	Tons collected.	Net cost.	Cost per ton.	Fines deducted.
1907.....	41, 269	\$77, 869.00	\$1.88	\$531.00
1908.....	44, 309	78, 302.00	1.76	98.00
1909.....	45, 069	78, 376.00	1.74	24.00
1910.....	44, 236	78, 396.00	1.77	4.00
1911.....	48, 214	68, 400.00	1.41	0.00

Ashes.

Number of loads hauled.....	41, 938
Number of cubic yards collected.....	171, 361
Number of tons collected.....	95, 785
Contract price.....	\$73, 150.00
Deductions for neglect.....	39.00
Cost (net).....	73, 111.00

Comparative statement showing cost of the ash service from 1907 to 1911.

Year.	Cubic yards collected.	Net cost.	Cost per cubic yard.	Fines deducted.
1907.....	116, 984	\$53, 540.00	\$0.45	\$460.00
1908.....	143, 324	60, 744.11	.42	372.00
1909.....	120, 792	65, 098.40	.53	946.00
1910.....	162, 272	65, 852.40	.40	192.00
1911.....	171, 361	73, 111.00	.42	39.00

Miscellaneous refuse.

Number of loads of refuse collected.....	13, 825
Cubic yards of refuse collected.....	108, 789
Contract price per annum.....	\$17, 000. 00
Deductions for neglect.....	2, 066. 00
Cost (net).....	14, 934. 00

Comparative statement showing cost of miscellaneous refuse service from 1907 to 1911.

Year.	Cubic yards collected.	Net cost.	Cost per cubic yard.	Fines deducted.
1907.....	62, 205	\$16, 352. 00	\$0. 26	\$148. 00
1908.....	70, 100	15, 362. 00	. 21	638. 00
1909.....	71, 508	15, 676. 00	. 22	324. 00
1910.....	72, 060	15, 654. 00	. 21	346. 00
1911.....	108, 789	14, 934. 00	. 14	2, 066. 00

Night soil.

Number of barrels of fecal matter removed.....	23, 834
Contract price per annum.....	\$16, 600. 00
Deductions for neglect.....	328. 00
Cost (net).....	16, 272. 00

Comparative statement showing cost of the night-soil service from 1907 to 1911.

Year.	Barrels collected.	Net cost.	Cost per barrel.	Fines deducted.
1907.....	21, 094	\$16, 442. 00	\$0. 78	\$58. 00
1908.....	21, 163	16, 466. 00	. 77	34. 00
1909.....	23, 894	16, 486. 00	. 68	14. 00
1910.....	26, 280	15, 984. 00	. 60	516. 00
1911.....	23, 834	16, 272. 00	. 68	328. 00

Dead animals.

Number of dead animals collected.....	16, 720
Contract price per annum (cost, net).....	\$2, 855. 00

Comparative statement showing cost of the dead-animal service from 1907 to 1911.

Year.	Number collected.	Net cost.	Cost per piece.	Fines deducted.
1907.....	14, 892	\$2, 350. 80	\$0. 158	\$10. 00
1908.....	19, 181	2, 360. 80	. 123	.....
1909.....	17, 993	2, 358. 80	. 131	2. 00
1910.....	18, 875	2, 360. 80	. 126	.....
1911.....	16, 720	2, 855. 00	. 170	.....

Department contracts.

No.	Nature of contract.	Contractor.	Price.	Contract—	
				Commenced.	Expires.
3736	Machine sweeping.....	J. F. Conrad.....	22½ cents per 1,000 square yards.	July 1, 1906	June 30, 1911
3732	Alley sweeping.....	M. R. Ready.....	40 cents per square yards.	.....do.....	Do.
3737	Unimproved street sweeping.	J. F. Conrad.....	\$73.80 per day.....	.....do.....	Do.
4581	Removal of garbage...	Washington Fertilizer Co.	\$68,400 per annum.....	July 1, 1910	June 30, 1915
4574	Removal of ashes.....	J. W. Bean.....	\$73.150 per annum.....	.....do.....	Do.
4573	Removal of refuse.....	M. R. Ready.....	\$17,000 per annum.....	.....do.....	Do.
4575	Removal of night soil..	Warner Stutler.....	\$16,000 per annum.....	.....do.....	June 30, 1913
4578	Removal of dead animals.	R. E. Mann.....	\$2,855 per annum.....	.....do.....	June 30, 1915
4576	Removal of ashes from Government buildings.	Warner Stutler.....	45 cents per cubic yard.	.....do.....	June 30, 1913
4613	Purchase of street sweepings.	Bidgood Bros.....	27½ cents per ton.....	.....do.....	June 30, 1911

STATEMENT OF APPROPRIATIONS AND EXPENDITURES.

SALARIES.

Disbursements for salaries.....	\$45,383.28
Unexpended balance.....	176.72
Amount of appropriation.....	<u>45,560.00</u>

SPRINKLING, SWEEPING, AND CLEANING STREETS.

Hand patrol—Operating expenses.

Pay rolls.....	\$80,971.73
Forage, horseshoeing, repairs to harness, stable labor, improvement to stable, and medicine for horses, 39.4 per cent (see note A).....	6,757.72
Purchase of jute sacks.....	861.00
Purchase of pan scrapers.....	147.84
Purchase of 50 new bag carriers.....	712.50
Purchase of split bamboo.....	161.28
Purchase of sundries.....	326.72
Repairs to bag carriers (material).....	75.10
Repairs to machines (material).....	732.05
Labor on repair work.....	1,306.77
Rent of storage room.....	48.00
Repairs to bicycles, 41½ per cent (see note C).....	141.56
Miscellaneous, 30 per cent (see note B).....	1,714.88
Miscellaneous, one-eighth (see note B).....	177.33
	<u>\$94,134.48</u>

Sprinkling—Operating expenses.

Pay rolls.....	4,145.34
Forage, horseshoeing, repairs to harness, stable labor, improvement to stable, and medicine for horses, 36.2 per cent (see note A).....	6,208.87
Repairs to sprinkler wagons (material).....	182.33
Repairs to sprinkler wagons (labor).....	615.84
Transfer voucher for work on county roads.....	189.00
Miscellaneous, 30 per cent (see note B).....	1,714.88
Miscellaneous, one-eighth (see note B).....	177.33
	<u>13,233.59</u>

Squeegeeing—Operating expenses.

Pay rolls.....	1,746.05	
Forage, horseshoeing, repairs to harness, stable labor, improvement to stable, and medicine for horses, 14.9 per cent (see note A).....	2,555.57	
Repairs (material).....	449.87	
Repairs to bicycles, 8½ per cent (see note C).....	28.31	
Miscellaneous, 15 per cent (see note B).....	857.44	
Miscellaneous, one-eighth (see note B).....	177.33	
		5,814.57

Purchase of new equipment (not used to replace old equipment):

4 kindling squeegee machines.....	4,800.00	
10 horses.....	2,958.29	
8 horses.....	1,825.84	
10 sets of double harness.....	725.00	
		10,309.13

Flushing—Operating expenses.

Pay rolls.....	513.01	
Forage, horseshoeing, repairs to harness, stable labor, improvement to stable, and medicine for horses, 4.6 per cent (see note A).....	788.98	
Miscellaneous, 5 per cent (see note B).....	285.81	
Miscellaneous, one-eighth (see note B).....	177.32	
		1,765.12
Purchase of new equipment:		
2 sanitary flushing machines.....	1,950.00	
4 horses.....	1,183.31	
4 horses.....	912.92	
4 sets of double harness.....	290.00	
		4,336.23

Machine street cleaning.

367,242,484 square yards, at 22½ cents per M.....	83,547.67	
Livery, 4 inspectors' horses, 12 months each at \$30 per month.....	1,440.00	
Extra livery.....	41.00	
Miscellaneous, one-eighth (see note B).....	177.32	
		85,205.99

Alley cleaning.

38,396,138 square yards, at 40 cents per M.....	15,358.44	
Repairs to bicycles, 25 per cent (see note C).....	84.93	
Miscellaneous, one-eighth (see note B).....	177.32	
		15,620.69

Unimproved street cleaning.

230.4369 days, at \$73.80.....	17,006.26	
Repairs to bicycles, 25 per cent (see note C).....	84.93	
Miscellaneous, one-eighth (see note B).....	177.33	
		17,268.52

Less reimbursement from contingent and miscellaneous expenses, District of Columbia, 1911—Wholesale Produce Market, sweeping B Street.....	480.00	
		16,788.52

Winter equipment.

Machines.....	1,230.00	
Cost of labor for repairs.....	215.66	
Miscellaneous, 20 per cent (see note B).....	1,143.26	
Miscellaneous, one-eighth (see note B).....	177.33	
		2,766.25
Unexpended balance.....		25.43
Amount of appropriation.....		250,000.00

NOTE A.—The following shows the average number of horses owned by the department and the percentage charged to each class of work for each quarter and also for

the entire year. The cost of forage, medicine, stable labor and improvements, horseshoeing, and repairs to harness has been charged to each class according to percentage shown below:

	Horses.	Hand patrol.	Sprinklers.	Squeegees.	Flushers.	Buggy.	Repairs.
		<i>Per cent.</i>	<i>Per cent.</i>	<i>Per cent.</i>	<i>Per cent.</i>	<i>Per cent.</i>	<i>Per cent.</i>
July, August, September.....	60	47.1	47.1	.....	.....	3.9	1.9
October, November, December..	73	39.4	32.8	16.43	6.55	3.27	1.63
January, February, March.....	69	39.35	32.85	16.4	6.57	3.28	1.64
April, May, June.....	116.83	32.05	32.05	26.7	5.34	2.67	1.33
Total for 4 quarters.....	.....	157.90	144.80	59.53	18.46	13.12	6.50
Average for year.....	.....	39.4	36.2	14.9	4.6	3.3	1.6

NOTE B.—The miscellaneous expenses represent certain items used in all branches of the work, although no record has ever been kept to show the amount chargeable to each class of the work. However, after careful examination of the requisitions for supplies issued and consultation with the foreman of repairs, the following memorandum has been prepared, which is thought to be approximately correct:

Administrative.

Telephones.....	\$137.10
Printing.....	125.15
Telegrams.....	10.73
Special.....	396.34
Waste boxes.....	34.01
Livery (chief inspector's horse).....	105.00
Forage, improvements to stable, horseshoeing, harness repairing, and stable labor for buggy horses, 3.3 per cent.....	566.00
Traveling expenses.....	44.28
	8)1, 418.61
	177.32
One-eighth charged to hand patrol.....	177.33
One-eighth charged to sprinklers.....	177.33
One-eighth charged to squeegees.....	177.33
One-eighth charged to flushers.....	177.33
One-eighth charged to snow and ice.....	177.33
One-eighth charged to machines.....	177.32
One-eighth charged to alleys.....	177.32
One-eighth charged to unimproved streets.....	177.32
	1, 418.61

NOTE.—The above includes only those items which are equally chargeable to each branch of the service, therefore designated "Administrative."

Operative.

Miscellaneous supplies.....	\$4, 123.44
Horses, carts, and harness (purchased from Bidgood Bros.).....	602.50
Split hickory, 26-inch.....	156.80
Tinner's equipment.....	84.95
Time keeping.....	474.16
Forage, improvements to stable, medicine, horseshoeing, repairs to harness, and stable labor, chargeable to horse used for repair work, 1.6 per cent..	274.42
	5, 716.27

30 per cent charged to hand patrol.....	\$1, 714. 88
30 per cent charged to sprinklers.....	1, 714. 88
20 per cent charged to snow and ice.....	1, 143. 26
15 per cent charged to squeegees.....	857. 44
5 per cent charged to flushers.....	285. 81

 5, 716. 27

NOTE.—The above includes only those items which are directly chargeable to "Operation."

NOTE C.—There are in all 12 bicycles in constant use, 5 of which are used in hand-patrol service, 3 each in alley and unimproved, and 1 in street washing (squeegees), so that the total cost of bicycle repairs, amounting to \$339.73, has been charged as follows: Five-twelfths, or $41\frac{1}{3}$ per cent, to hand patrol; three-twelfths, or 25 per cent, to alleys; three-twelfths, or 25 per cent, to unimproved; one-twelfth, or $8\frac{1}{3}$ per cent, to squeegees.

DISPOSAL OF CITY REFUSE.

Collection and disposal of city refuse, 1911.

For collection and disposal of garbage.....	\$68, 400. 00
For collection and disposal of ashes.....	73, 111. 00
For collection and disposal of miscellaneous refuse.....	14, 934. 00
For collection and disposal of night soil.....	16, 272. 00
For collection and disposal of dead animals.....	2, 855. 00
Livery of inspectors' horses.....	1, 389. 00
Miscellaneous expenses.....	183. 53
Unexpended balance.....	2, 800. 47

 Amount of appropriation..... 179, 945. 00

CLEANING SNOW AND ICE FROM STREETS, SIDEWALKS, CROSSWALKS, AND GUTTERS.

Appropriation for fiscal year ending June 30, 1911.

From appropriation, act Mar. 3, 1909, there remained July 1, 1910, \$26,614.02, of which \$10,000 was reappropriated for the fiscal year ending June 30, 1911, and the balance of \$16,614.02 was covered into the Treasury.....	\$10, 000. 00
From appropriation, Feb. 9, 1909.....	4, 875. 00
From public resolution No. 19, 1905.....	77. 19

 Total available for fiscal year ending June 30, 1911..... 14, 952. 19
Expenditures during fiscal year ending June 30, 1911.

Balance available from appropriation Mar. 3, 1909.....	10, 000. 00
Labor.....	\$6, 592. 94
Hire of wagons and teams.....	529. 62
Implements.....	2, 740. 87
Miscellaneous.....	40. 74

 9, 904. 17

 Covered into the Treasury..... 95. 83

Balance available from appropriation Feb. 9, 1909.....	4, 875. 00
Labor.....	2, 466. 99
Hire of teams.....	261. 00

 2, 727. 99

 Balance available for fiscal year ending June 30, 1912..... 2, 147. 01

Still available for fiscal year ending June 30, 1912, balance from public resolution No. 19, 1905.....	77. 19
Total amount expended on snow and ice during the fiscal year ending June 30, 1911.....	12, 632. 16

CONTINGENT AND MISCELLANEOUS EXPENSES, STREET-CLEANING ALLOTMENT, 1911.

Office expenditure.....	303.88
Forage, superintendent's horse.....	120.36
Repairs to buggy and harness.....	68.20
Unexpended balance.....	7.56
Street-cleaning allotment.....	500.00

SUMMARY OF APPROPRIATIONS AND EXPENDITURES.

	Appropriated.	Expended.	Balance.
Annual salaries.....	\$45,560.00	\$45,383.28	\$176.72
Street cleaning.....	250,000.00	249,974.57	25.43
City refuse.....	179,945.00	177,144.53	2,800.47
Snow and ice.....	14,952.00	12,632.16	2,319.84
Total.....	490,457.00	485,134.54	5,322.46
Contingent and miscellaneous street-cleaning allotment.....	500.00	492.44	7.56

NOTE.—A few small accounts remain still unsettled and have been estimated in the above statements, so that they may not be exact.

REPORT OF INSPECTOR OF ASPHALT AND CEMENTS.

WASHINGTON, August 19, 1911.

CAPTAIN: I have the honor of submitting the following report showing the operations of this office during the fiscal year ending June 30, 1911, summarized in the following tables:

Number of samples tested.

Hydraulic cements:	
Portland, brands, 5.....	9,165
Asphalts:	
Bermudez.....	46
California.....	6
Cuban.....	1
Trinidad, Lake.....	2
Asphaltic cements.....	561
Asphaltic surface mixtures.....	238
Asphaltic binder mixtures.....	21
Asphaltic mastic.....	1
Binder stone.....	213
Block, asphalt.....	38
Crushed stone.....	151
Limestone dust.....	54
Oil, residuum.....	31
Sands.....	220
Miscellaneous tests and analyses:	
Brick, paving.....	5
Bronze.....	1
Cinders.....	1
Coal tar.....	1
Gasoline.....	2
Kerosene.....	1
Lampblack.....	2
Linseed oil.....	1
Paint.....	3
Paving pitch.....	1
Road oils.....	32
Turpentine.....	1
Water.....	55
Total.....	10,854

HYDRAULIC CEMENTS.

Number of barrels inspected and the average results of tests on same—Portland cements.

[The 9,165 samples represent 91,347 barrels, of which 4,550 were rejected.]

Brand.	Atlas.	Dragon.	Giant.	Old Dominion.	Universal.
Number of barrels.....	230	57,510	5,199	27,943	465
Number of samples.....	35	5,751	523	2,795	61
Residue retained on 100-mesh sieve, per cent.....	5.3	5.6	4.0	5.9	4.2
Initial set.....	2 h. 30 m.	2 h.	1 h. 45 m.	2 h. 12 m.	2 h.
Per cent water used:					
Neat cement.....	20	20	20	20	19
3 parts standard quartz.....	9.5	9.5	9.5	9.5	9.5
Temperature of air and water.....	76° F.	80° F.	76° F.	77° F.	76° F.
Tensile strength per square inch:					
Neat, 1 day.....	521	540	440	419	325
Neat, 7 days.....	616	733	652	712	667
Sand 1:3, 7 days.....	329	333	306	311	273
Specific gravity.....	3.137	3.107	3.168	3.129	3.055

Barrels of cement tested during the year.

District of Columbia.....	49,690
Brennan Construction Co.....	21,007
W. F. Brenizer Co.....	16,650
Cranford Paving Co.....	4,000
Total.....	91,347

BINDER STONE.

During the year there were examined 213 samples of binder stone used by contractors in laying asphalt streets, representing 12,440 cubic yards. Of this amount 130 cubic yards were rejected on account of inferior quality, softness of stone, or excess of dirt.

	Samples received.		Samples rejected.	
	Number.	Cubic yards.	Number.	Cubic yards.
Brennan Construction Co.....	199	11,540	2	130
Cranford Paving Co.....	14	900		

LIMESTONE DUST.

This material is used as a filler to reduce the percentage of voids in the sand used in the asphalt topping mixture. There were examined 26 samples, all of which passed the required degree of fineness—all to pass 30 and not less than 85 per cent to pass 100-mesh sieve.

	Samples.	Tons.
Brennan Construction Co.....	23	575
Cranford Paving Co.....	3	75

INSPECTION OF SAND USED IN SURFACE MIXTURES.

For the Brennan Construction Co.: Inspected 187 scows, equaling 28,050 cubic yards, of which there were rejected 4,200 cubic yards, or 14.97 per cent.

For the Cranford Paving Co.: Inspected 9 scows, equaling 1,350 yards, of which none was rejected.

PETROLEUM RESIDUUM.

All residuum used during the year by the contractors in the preparation of asphalt cements was the product of the Standard Oil Co., and was found to be of good quality. A total of 31 samples was submitted by the contractors for test and examination, which showed the following:

	Samples.			Pounds.		
Brennan Construction Co.....	18			900,000		
Cranford Paving Co.....	2			100,000		
Washington Asphalt Block & Tile Co.....	11			528,600		

	Specific gravity.			Gravity, Baumé.			Flashed.		
	High-est.	Low-est.	Aver-age.	High-est.	Low-est.	Aver-age.	High-est.	Low-est.	Aver-age.
Brennan Construction Co. and the Cranford Paving Co.....	0.9397	0.9296	0.9360	20.6	18.9	19.5	° F. 430	° F. 325	° F. 379
Washington Asphalt Block & Tile Co....	.9568	.9504	.9529	17.3	16.3	16.9	480	355	425

	Burned.			Loss, at 400° F. for 30 hours.		
	High-est.	Low-est.	Aver-age.	High-est.	Low-est.	Aver-age.
Brennan Construction Co. and the Cranford Paving Co.	° F. 500	° F. 440	° F. 467	Per ct. 14.0	Per ct. 2.2	Per ct. 5.5
Washington Asphalt Block & Tile Co.....	570	515	547	6.2	.6	2.3

ASPHALTS.

Samples submitted of asphalt to be used in the laying of pavements for the District of Columbia showed the following percentage of bitumen soluble in carbon bisulphide:

Brennan Construction Co.

	Per cent.
40 samples Bermudez, refined, representing 3,725 tons.....	94.00
1 sample Lake Trinidad, refined, representing 100 tons.....	56.10

Cranford Paving Co.

6 samples Bermudez, refined, representing 150 tons.....	94.00
---	-------

Washington Asphalt Block & Tile Co.

1 sample Lake Trinidad, crude, representing 1,250 tons.....	¹ 55.23
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¹ After refining.

ASPHALT CEMENTS.

Table showing penetration results of asphalt binder and topping used by the paving companies during the fiscal year 1911.

Penetrations at 77° F.

	Brennan Construction Co.				Cranford Paving Co.		Washing- ton Asphalt Block & Tile Co.
Asphalt.	Bermudez.		Lake Trinidad.		Bermudez.		Lake Trinidad.
Asphalt cement.	Binder.	Top.	Binder.	Top.	Binder.	Top.	Block.
Number of samples.....	226	226	25	28	10	12	34
Highest:							
Yard test.....	76	63	75	61	71	60	23
Office test.....	78	66	78	63	70	62	28
Lowest:							
Yard test.....	63	50	66	55	69	52	18
Office test.....	54	51	67	55	66	53	17
Average:							
Yard test.....	70	57	71	58	70	57	20
Office test.....	69	57	73	59	69	57	20

BINDER MIXTURE.

During the year 21 samples were submitted for examination and analyses. The following table shows the average per cent bitumen contained:

	Number of samples.	Bitumen soluble in carbon bisulphide.
Brennan Construction Co.:		Per cent.
Bermudez.....	14	3.3
Lake Trinidad.....	1	2.5
Cranford Paving Co.:		
Bermudez.....	6	3.3

ASPHALT SURFACE MIXTURES.

During the year 238 samples were submitted for examination and analyses. The following tables show the maximum, minimum, and average per cent bitumen contained, and the average mesh composition of sand used in the surface mixtures:

	Number of samples.	Per cent bitumen.		
		Highest.	Lowest.	Average.
Brennan Construction Co.:				
Bermudez.....	198	11.5	9.5	10.7
Lake Trinidad.....	26	11.5	9.5	10.4
Cranford Paving Co.:				
Bermudez.....	14	11.3	10.4	10.3

Mesh composition of sand.

	Brennan Construc- tion Co.	Cranford Paving Co.
Per cent retained on sieves having—		
20 meshes per linear inch.....	2.3	2.7
40 meshes per linear inch.....	20.5	21.1
60 meshes per linear inch.....	30.4	26.4
80 meshes per linear inch.....	18.2	22.0
100 meshes per linear inch.....	9.2	8.0
Passing 100 meshes per linear inch.....	19.4	19.8

ASPHALT BLOCK.

During the year there were manufactured for the District government by the Washington Asphalt Block & Tile Co., of this city, about 1,132,666 paving blocks. These were used in paving various streets, avenues, and alleys, approach to and the plaza of the Union Station. These blocks were manufactured of Trinidad Lake asphalt fluxed with petroleum residuum and a mineral aggregate composed of Potomac granite and limestone. Following is a table showing average results of tests of materials used in their manufacture:

Average results of tests of asphalt cement and mineral aggregate used in the manufacture of asphalt blocks.

	As originally used in mixture.	Reduced to 50 per cent purity by addition of limestone dust for laboratory test.
Bitumen soluble in carbon bisulphide.....per cent..	63.21	50.22
Penetration:		
At 77° F., 100 grams, 5 seconds.....	20	17
At 115° F., 50 grams, 5 seconds.....	100	74
Per cent of hardening after heating at 300° F. for 18 hours.....	8.69	2.60
Per cent of loss after heating at 300° F. for 18 hours.....	0.68	0.42
Brittleness, in centimeters, drop of 25 grams weight, at 32° F.....	14	14

Asphalt block mixture.

Specific gravity.....	2.385
Bitumen soluble in carbon bisulphide.....per cent..	7.42
Mesh composition of mineral aggregate:	
Retained on $\frac{1}{4}$ -inch mesh sieve.....	1.9
Retained on 20-mesh sieve.....	59.3
Retained on 100-mesh sieve.....	16.7
Passing 100-mesh sieve.....	22.1

MISCELLANEOUS.

Throughout the year tests and analyses have been made on various materials as shown in the first table of this report. These investigations were made in response to requests of other departments of the District government, and the results obtained in each case reported to the official by whom such requests were made.

The 55 samples of water were taken at regular intervals from the Potomac River by representatives of this office and tested for dissolved oxygen. This work was done in cooperation with the sewer department and is still in progress.

Very respectfully,

J. O. HARGROVE,
Inspector of Asphalt and Cements.

Capt. MARK BROOKE,
*Corps of Engineers, United States Army,
Assistant to Engineer Commissioner, District of Columbia.*

REPORT OF THE SURVEYOR, DISTRICT OF COLUMBIA.

WASHINGTON, September 7, 1911.

SIR: I have the honor to submit the following report of the operations of this office for the fiscal year ending June 30, 1911:

There has been a decrease in the amount of work for private parties during the past year, due to a slight falling off in building operations.

The total receipts for work done for private parties amounted to \$21,496.17, which is somewhat less than for the previous year. This is, however, greater than the amount received for any year prior to 1910, which was a record year.

There have been surveyed and subdivided 23 large tracts of agricultural land into squares and building lots. This class of work has entailed a large amount of work for the office, which included subdivisions of the following parcels:

Parcels 37/6 and 37/35, and parts of parcels 36/2, 37/1, 37/2, 37/3, 37/4, 37/5, 37/36, 46/4, and 46/5, subdivision by the Chevy Chase Land Co.

Parcel 135/7, subdivision by Charles H. Morgan, trustee, known as North Brookland.

Part of parcel 212/6, subdivision by the United States Trust Co., trustee, known as Randle Highlands.

Parcels 41/3, 41/6, 41/10, 53/10, and part of parcel 41/4, subdivision by the American Security & Trust Co. and others, known as Massachusetts Avenue Heights.

Parcels 89/5, 89/6, 90/1, 90/2, 90/3, 90/5, 90/7, 90/8, 90/9, and parts of parcels 90/10 and 91/1, subdivision by Lynchburg Investment Co., known as Shepherd Heights.

Of the largest and most difficult of these subdivisions was the Massachusetts Avenue Heights subdivision, in which many curved streets, parked highways, etc., were located upon the ground.

The work done for the various departments of the District government and for the United States Government has increased over any previous year. This is work for which the office receives no revenue or credit, and includes survey work, such as surveys for Montrose Park, survey and preparation of plats in the matter of condemnation of land for Meridian Hill Park, and survey of the interior park known as Willow Tree Alley, square 534.

The following table is submitted as a matter of comparison and convenience, and will show the relation of the work for the past year with the previous two years:

	Fiscal year 1908-9.	Fiscal year 1909-10.	Fiscal year 1910-11.
FOR PRIVATE PARTIES.			
Individual lots or parts of lots surveyed in city and county.....	2,277	2,854	2,624
Certificates of survey issued covering one or more lots.....	1,130	1,290	1,283
Duplicates of above recorded in survey certificate books.....	1,130	1,290	1,283
Separate surveys made to verify walls.....	818	954	799
Individual buildings inspected as to location of new walls.....	1,948	2,422	1,987
Walls moved before final certification.....	478	490	697
Large tracts in county surveyed, subdivided, and recorded.....	24	25	23
Outline surveys in county of unsubdivided tracts.....	92	98	83
Subdivision blanks prepared.....	598	627	519
Duplicate subdivision blanks prepared for assessor.....	598	627	519
Subdivisions recorded.....	583	561	492
Total of individual new lots in subdivisions.....	5,958	7,706	5,638
Plats of one or more recorded lots to accompany applications for building permits (commonly called building plats).....	1,305	1,400	1,300
Plats made under regulations for theaters, stables, motors, etc.....		122	71
Indorsements on survey plats.....	1,130	1,290	1,283
Indorsements on wall survey plats.....	818	954	799
Estimates of cost issued in triplicate.....	4,070	4,533	4,012
Plats made up on order of private parties.....	3,747	4,189	3,798
Total of fees paid to collector of taxes by private parties.....	\$20,544.76	\$22,891.80	\$21,496.17
FOR THE DISTRICT OF COLUMBIA.			
Surveys for the District of Columbia.....	110	92	106
Plats recorded (condemnations, dedications, etc.).....	30	84	65
Postal card reports concerning walls to owners.....	818	954	799
Reports concerning walls to building inspector.....	895	995	836
Assessment and taxation plats recorded.....	252	327	314
MISCELLANEOUS.			
Total of surveys for the District of Columbia and private parties....	2,174	2,459	2,294
Total of plats, public and private, including plats drawn in books..	6,054	6,733	6,247

STREET EXTENSION.

I respectfully transmit herewith the report of the assistant surveyor, who has prepared the report on all matters relating to bills prepared for Congress and condemnation cases for streets and alleys.

This report will show a large increase in the number of cases filed in court for the condemnation of streets and alleys, there being 23 street-extension cases against 16 for last year, and 18 alley-condemnation cases against 10 for last year. This large increase in this class of work, which requires much care in its preparation, has taken a considerable amount of time and labor of a large part of the office force, many cases requiring a very careful survey.

It is believed that the placing of the street-extension office under the supervision of the surveyor has proven satisfactory, notwithstanding the fact that it has greatly increased the amount of work. It is believed that, on account of the efficiency of the work, this change has been justified, in many cases duplication of work having been prevented.

The report attached will show what action has been taken in the various cases.

PENDING LEGISLATION.

I wish to renew my previous recommendation in regard to what is now known as House bill No. 9238, and to urge action upon this bill, which authorizes the surveyor to place upon the official records for each and every plat of ground in the District of Columbia a new number, so that these numbers may be used for any purpose. Old subdivisions are known by local names, such as Meridian Hill, Mount Pleasant, Petworth, etc., and are carried upon the index and records of this office by such names, whereas the assessor, for assessment purposes only, designates them by new square numbers, in which there is no duplication in the entire District. Each year more confusion and complication arises owing to the two designations, as the old ones are becoming more difficult to identify. I know of no legislation that is more important for this office, and I earnestly urge passage of this bill.

NEW LEGISLATION.

A number of park propositions are being prepared in this office and will be submitted within the next few days, such as the park including Fort Davis and Fort Dupont, along the Bowen Road from Massachusetts Avenue to Pennsylvania Avenue SE.; Piney Branch Park, from Sixteenth Street to Georgia Avenue, with an estimate for constructing a parked driveway; and the Klinge Ford Valley Park, with an estimate for constructing a driveway.

These are matters of great importance to the entire District, and are matters involving the expenditure of a large amount of money, but it is important that action be taken soon, for the reason that subdivisions will be made and streets condemned and opened through these tracts, destroying the natural beauty and rendering them unfit for park purposes, as well as increasing the value of the land.

Bills will also be prepared providing for the condemnation of the roads in the Barry Farm subdivision. These roads, as now recorded, are owned by the abutting property owners. The District has declined to improve them by sewer and water. This creates an unsanitary condition and is a menace to the health of the residents of that section. This condition is growing worse as the population increases. The cost of these proceedings should be assessed against the property benefited, and would not be a hardship to the owners of the property taken, for it is now used for street purposes, while, at the same time, taxes are being paid by the owners.

It is believed that Spring Road should be condemned, according to the highway plan, from Georgia Avenue to Rock Creek Park. There is no part of the District developing more rapidly than this section, and this street should be acquired before improvements are constructed within its lines. There is now a very dangerous condition existing at Thirteenth Street and Spring Road. If this street were acquired and grades established, the uncertainty would be removed and improvements would follow more rapidly.

Also it is believed that Fifth Street should be condemned from McMillan Park to Park Road.

Under Public Act No. 170, approved May 10, 1910, the commissioners were authorized to condemn and acquire fee simple and absolute title, including all riparian rights, to a strip of land for a public highway and for park purposes along the Anacostia River from Monroe Street to Giesboro Point. Survey has been made and the case is now in court. It is believed that this highway should be extended from Monroe Street to the District line, on the east side of the Anacostia River, and from the northeast bound-

ary of the city to the District line, on the west side of the river. This would be for all time the boundary between private owners and the Government, and it is very probable would save litigation, such as was the case in the famous *Morris v. United States*, known as the Potomac Flats case. The line of demarkation between the river and the private owners is fast passing away by reason of filling in and the receding of the river. As improvements take place along this river front, it will be impossible to determine the division line. Large sums of money are being expended for the improvement of the Anacostia River, and this matter should be given serious consideration.

I have asked for a small increase, as shown by my annual estimates, believing that the increased work of the office from year to year, without a proportional increase of help, justifies this recommendation.

My acknowledgments are due to the men of this office for the splendid service they have rendered. They have applied themselves diligently to the work, and have made it possible to give efficient service to the public, who pay for the work that is done.

Very respectfully,

MELVIN C. HAZEN,
Surveyor, District of Columbia.

Capt. MARK BROOKE,
Corps of Engineers, U. S. Army,
Assistant to the Engineer Commissioner, D. C.

STREET EXTENSION DIVISION.

SURVEYOR'S OFFICE, DISTRICT OF COLUMBIA,
Washington, September 6, 1911.

SIR: I have the honor to submit herewith report of the operation of the street extension division for the fiscal year ended June 30, 1911.

Reports and maps were prepared and sent to Congress on the following bills:

Extension of Benton Street NW. from Wisconsin Avenue to Tunlaw Road.

Extension of Calvert Street, Cleveland Avenue, Rock Creek Drive, Twenty-eighth Street, Twenty-ninth Street, and Thirtieth Street NW.

Extension of Colorado Avenue and Kennedy Street NW.

Extension of Grant Street and Deane Avenue NE.

Change in highway plan between Newton Street, Rock Creek Park, Taylor Street, and Fourteenth Street NW.

Kling Road Valley entrance to Zoological Park.

Extension of Lamont Street from Nineteenth Street to Twentieth Street NW.

Extension of Newton Place NW.

Abandonment of Piney Branch Road between Allison and Buchanan Streets NW.

Extension and widening of Q Street NW.

Opening a park, Rock Creek Valley, between Potomac Park and Zoological Park.

Opening a park, interior of square 534.

Extension of Underwood Street from Piney Branch Road to Third Street NW.

Widening of Wisconsin Avenue south of Edmunds Street.

Zoological Park entrance from Sixteenth Street and Columbia Road and change in highway plan for adjacent territory.

In addition to above plats were brought to date and reports amended on the following bills, which had been introduced in previous Congress but failed to pass, for introduction in the present Congress:

Extension of Barry Place from Georgia Avenue to McMillan Park.

Extension of First Street NE. from Florida Avenue to Rhode Island Avenue.

Extension and widening of Minnesota Avenue from Pennsylvania Avenue to District Line.

Extension of Seventeenth and Kenyon Streets NW.

Widening of Sixteenth Street at Piney Branch Road.

The work during the year has been marked by the number of extensive surveys necessary in preparing street and park condemnation cases for filing in court, notably the road along the Anacostia River, entrance to Zoological Park from Sixteenth Street and Columbia Road, and the interior park, square 534.

An unusual number of alley condemnation cases have been prepared and filed in court during the year.

Submitted herewith is a table showing action taken on all condemnation cases filed during the year and action taken on cases previously filed where such cases were not finally disposed of prior to July 1, 1910.

Very respectfully,

J. B. SHINN,
Assistant Surveyor, District of Columbia.

The SURVEYOR DISTRICT OF COLUMBIA.

Condemnation cases.

STREET EXTENSIONS AND PARKS.

Location.	Court docket No.	Act No.	Act approved.	Case filed.	Verdict filed.	Verdict.		Action on verdict.
						Damages.	Benefits.	
Girard Street NW., west of Fifteenth Street.....	812	279	Feb. 26, 1909	Apr. 9, 1909	July 21, 1909			Decree setting aside verdict and award of jury, Dec. 14, 1909. Case continued to Oct. 13, 1911.
New York Avenue, Fourth Street to Bladensburg Road.....	819	211	Feb. 6, 1909	May 5, 1909	June 18, 1910	\$64,183.80	\$64,897.06	Confirmed Jan. 26, 1911.
Massachusetts Avenue SE. to Bowen Road.....	821	268	Feb. 25, 1909	May 18, 1909	Nov. 2, 1910	6,554.98	7,086.44	Confirmed Dec. 2, 1910.
Massachusetts Avenue, Pennsylvania Avenue to Sheriff Road.....	823	267	.....do.....	May 22, 1909	.....			Final action pending.
Extension of Forty-first Street NW.....	872	93	Mar. 23, 1910	Apr. 29, 1910	Apr. 21, 1911	20,898.89	21,600.45	Confirmed June 2, 1911, second verdict.
Extension of Park Place NW.....	874	55	Feb. 21, 1910	May 12, 1910	Dec. 15, 1910	17,900.59	18,159.00	Confirmed June 22, 1911.
Extension of Franklin Street NE.....	877	56	.....do.....	May 23, 1910	Dec. 20, 1910	3,554.18	3,962.14	Confirmed Jan. 31, 1911.
Extension of Newton Place NW.....	878	57	.....do.....	.....do.....	.....			Case dismissed Nov. 18, 1910.
Building-restriction line, Thirteenth Street between Park and Monroe Streets.....	880	.....	.....do.....	June 13, 1910	Mar. 22, 1911			Objection to verdict sustained, and new jury ordered June 9, 1911.
Extension of Columbia Road NW.....	890	97	Mar. 23, 1910	Aug. 22, 1910	Nov. 17, 1910	2,590.50	2,957.39	Confirmed Dec. 16, 1910.
Extension of Twenty-third and R Streets SE.....	891	73	Mar. 2, 1910	.....do.....	Nov. 22, 1910	3,176.20	3,573.72	Do.
Extension of Belmont Road and Waterside Drive.....	895	74	.....do.....	Aug. 31, 1910	May 29, 1911			Not yet confirmed.
Extension of Military Road.....	902	98	Mar. 23, 1910	Sept. 19, 1910	Dec. 21, 1910	1,342.75	1,706.85	Confirmed Jan. 13, 1911.
Extension of Princeton Place NW.....	914	42	Apr. 20, 1910	Oct. 18, 1910	Feb. 2, 1911	7,120.00	7,593.60	Confirmed Mar. 3, 1911.
Extension of First Street NE.....	921	184	May 18, 1910	Nov. 17, 1910	.....			Final action pending.
Widening of Nineteenth Street NW.....	922	207	June 11, 1910	.....do.....	.....			Do.
Widening of First Street NE.....	925	170	May 10, 1910	Dec. 9, 1910	.....			Do.
Road along the Anacostia River.....	927	185	May 18, 1910	.....do.....	May 23, 1910			Not yet confirmed.
Widening Cedar Street NW.....	935	228	June 22, 1910	Jan. 23, 1911	.....			Final action pending.
Extension of Massachusetts Avenue NW.....	935	326	Dec. 20, 1910	Apr. 28, 1911	.....			Do.
Extension of Reno Road NW.....	956	489	Mar. 4, 1911	May 8, 1911	.....			Do.
Extension of South Street NE.....	958	489	Mar. 4, 1911	June 16, 1911	.....			Do.
Extension of Thirteenth Street NW.....	963	405	Feb. 20, 1911	.....	.....			Do.
Interior Park, Square 534.....	965	441	Mar. 2, 1911	June 26, 1911	.....			Do.

REPORT OF SUPERINTENDENT OF TREES AND PARKINGS.

WASHINGTON, *August 16, 1911.*

SIR: I have the honor to submit herewith my twenty-sixth annual report, dealing with the operations of the trees and parkings office during the fiscal year ended June 30, 1911.

The systematic planting of young trees continued to be the most important feature in our work, the necessity being recognized to shade all improved streets as rapidly as the surface conditions justify it. Our efforts along this line resulted in the transplantation of 3,869 young trees from the nursery to their permanent position on the streets. Owing to vicissitudes of weather, a slight decrease is noted in this work as against last year's record, which exceeded 4,000 trees. Of the number planted, a large majority were, of course, set at the curb line to extend the system and fill the vacancies as they occurred. A few streets, however, are provided with parking rows, such as Massachusetts Avenue and Sixteenth Street, and 38 trees were accordingly planted to maintain these lines. In addition, 13 were planted in various school yards and 21 in public playgrounds. This planting continues to be a costly item in view of the existing high price of labor and materials of all kinds and the necessity for longer hauls due to the rapid growth of the city.

TREES PLANTED.

<i>Fall season.</i>		<i>Spring season.</i>	
Elms.....	225	Elms.....	76
Gingkos.....	15	Gingkos.....	105
Lindens.....	19	Lindens.....	21
Norway maples.....	439	Norway maples.....	866
Pin oaks.....	306	Pin oaks.....	351
Red oaks.....	255	Red oaks.....	75
Sugar maples.....	123	Sugar maples.....	79
Sycamores.....	445	Sycamores.....	468
		Tulip poplar.....	1
Total.....	1,827	Total.....	2,042

Coordinate with the street planting work, a large number of seedlings of various kinds, as hereinafter enumerated, were transferred from seed beds to nursery rows in both the E Street and Georgia Avenue nurseries. This work shows an increase over that of the corresponding period last year. These trees will be ready for street planting in about four years and, included with the present available stock, represent an estimated total of 30,000 young trees which may be drawn upon for street needs during the next four years. In addition, both nurseries are fully stocked with seedlings in beds, which are coming on to take the places of those transferred to the streets. An arrangement has been effected with the Board of Charities, which was approved by the District Commissioners, whereby a considerable tract of ground adjacent to the female workhouse on E Street SE. has been transferred to this division for nursery purposes, in exchange for a corresponding tract in the Georgia Avenue nursery adjacent to the residence of the superintendent of the tuberculosis hospital, thus settling a controversy which has existed for several years as to the superintendent's right to farm the land nearest his house. This office was not averse to the transfer, provided adequate return was made, as has been done, but owing to the fact that there are two or three thousand young trees on this ground in various stages of development, it will be impracticable to completely transfer it before the expiration of three or four years. In connection with the ground at the workhouse site, two large buildings have also been turned over for use as workshops, these being a decided improvement over the sheds formerly used adjacent to the leper camp on the same reservation. These buildings will also relieve the crowded conditions at our Canal Street yard by affording shelter for the spraying apparatus in off seasons.

The following seedlings were transplanted from seed beds to nursery rows during the year:

<i>E Street nursery.</i>		<i>Georgia Avenue nursery.</i>	
Pin oaks.....	1,400	Lindens.....	196
Sycamores.....	1,361	Pin oaks.....	914
Red oaks.....	1,228	Willow oaks.....	206
Norway maples.....	689		
Gingkos.....	106	Total.....	1,316
Lindens.....	245		
Elms.....	240		
Total.....	5,269		

Little progress was made upon the general trimming of street trees, principally because of the delay incident to three heavy storms, when trees and branches were broken throughout the city. The storm work taxes our force to the utmost, owing to its scattering nature and the necessity for prompt attention. Because of the general havoc worked by the elements, it became necessary to cover the entire tree-planted district, to stake, brace, and strap young trees which had become loosened and would have been destroyed in many cases by lack of attention. The three storms referred to occurred in quick succession, each coming on before the force had gotten fairly over the work occasioned by the preceding one, and the result was that the regular work was delayed beyond recovery during the year. From the point of discontinuance last year at Fourth Street east, the systematic trimming progressed to and included Tenth Street east, and a great improvement in the northeast and southeast sections is noted as a result of it. Incidentally, it was possible to head back a large number of silver maples which had grown too tall for safety and whose dead branches rendered them unsightly and a menace to the public. There was a considerable increase noted in the scattering work of various kinds, performed in compliance with requests of individuals. This office, however, continued to give these matters prompt attention, and at the close of the year this work was practically up to date. The rapid growth of the city is adding much to the difficulty of promptly attending to work of all kinds, and unless there is soon a substantial increase in the appropriation, permitting a better equipment, this office will find itself severely handicapped.

The following table shows the kinds and number of trees removed during the year. Careful attention is always given to removal requests, and many growths are saved by suggested changes in driveways, vaults, buildings, etc. Yet, with all its vigilance, the office regrets to state that there is too large a percentage of trees destroyed each year which could with a little care be saved. In the case of dead trees the table gives but few causes, these being generally difficult to determine, and it may be well at some future time to provide means of chemically examining soil and trees to ascertain more definitely the cause of repeated deaths in certain locations. This, however, is not now imperative.

Statement of trees removed during the year.

Ailanthus.....	1	Oaks:	
Althea.....	3	Pin.....	119
Ash.....	53	Red.....	8
Catalpa.....	21	White.....	16
Cedar.....	1	Willow-leaf.....	1
Cherry.....	1	Osage orange.....	2
Chestnut.....	4	Persimmon.....	1
Elm.....	48	Pine.....	4
Ginkgo.....	5	Poplars:	
Horse-chestnut.....	2	Aspen.....	23
Linden.....	121	Athenian.....	11
Locust.....	15	Balsam.....	1
Maples:		Carolina.....	286
Norway.....	411	Tulip.....	137
Red.....	9	Plum.....	1
Silver.....	505	Spruce, Norway.....	8
Sugar.....	95	Sycamore.....	273
Mulberry.....	2		
Negundo.....	48	Total removed.....	2,236

Causes of removals or deaths.

Dead, decayed, and dangerous.....	846
Street repairs, buildings, driveways, vaults, etc.....	781
Destroyed by storms.....	95
Inferior and condemned varieties.....	453
To relieve excessive shade.....	61

Total..... 2, 236

Of the dead trees included in the above, it was ascertained that 136 were killed by gas, 1 was killed by water, and salt killed 1, while the remainder of the dead were unexplained.

Curb trees.....	1, 977
Parking trees.....	195
Sidewalk trees.....	37
Alleys and roadways.....	22
School grounds.....	5

Total..... 2, 236

In the early part of the fiscal year, because of the existence of large numbers of insects, a small power spraying machine was purchased and immediately put into service in spraying the elms with arsenate of lead. For a cheap sprayer the machine did good service on small trees, but was soon found incapable of adequately covering the larger ones, which are annually infested by the elm-leaf beetle and other insects. Taking cognizance of this fact, the commissioners included in the next estimate a special insect fund of \$5,000 to be made immediately available on passage of the District appropriation act, and Congress acceding to the request this amount was placed at our disposal about the beginning of the following April. Negotiations were at once opened for the purchase of a high-power spraying machine. After exhaustive bidding and correspondence, the proposal of the FitzHenry-Guptill Co., of Boston, Mass., was accepted, and this office was furnished a 400-gallon sprayer with 10 to 14 horsepower, four cylinder, special type, Buffalo gasoline engine. This machine, which cost about \$1,350 complete, has been kept steadily in service, its use being confined principally to elms, lindens, and Norway maples, a few others being sprayed as occasion demanded. The machine developed an efficiency beyond our expectations, and the result is reflected in the present fine condition of the trees throughout the city. The arsenate of lead spraying is quite a new departure, and is particularly so here in Washington. It is about the most effective method of dealing with leaf-destroying insects, since it poisons their food supply and practically starves them out. In this connection it has been interesting to observe the progress of the elm-leaf beetle on isolated elms which have not been sprayed. In every instance they were completely denuded in a week or two, while their more fortunate neighbors retained their leaves without noticeable change except a slight discoloration of the foliage. The spraying work was not confined to street trees, but extended to the public parks as well, this office complying with a request from the Superintendent of Public Buildings and Grounds to treat trees in various parks under his supervision, the expense of which was defrayed by his department.

The following table may be interesting as showing the extent of the spraying during the year:

Curb elms sprayed first time.....	8, 316
Curb elms sprayed second time.....	6, 232
Curb elms sprayed third time.....	116
Linden trees at curb sprayed.....	4, 931
Norway maples at curb sprayed.....	1, 258
Sycamore maples at curb sprayed.....	117
Red maples at curb sprayed.....	62
Gums at curb sprayed.....	98
Silver maples at curb sprayed.....	8
Aspen poplars at curb sprayed.....	7
Tulip poplars at curb sprayed.....	2
Negundos at curb sprayed.....	17
Sycamores at curb sprayed.....	11

Total number of street trees sprayed..... 21, 175

Virginia Avenue playgrounds.....	35
Johnson School yard.....	1
Gales School yard.....	13
	<hr/> 49
Dupont Circle.....	(1)
Grant Circle.....	33
Judiciary Square.....	95
Lafayette Square.....	(1)
Lincoln Park.....	45
Washington Circle.....	(1)
White House grounds.....	(1)
United States Marine Barracks.....	38
British embassy (all trees and plants).	

The usual amount of cultivation of young street trees was done during the year. This work is absolutely necessary to insure good growth in young specimens, allowing them to derive the fullest benefits from rainfall. The hot dry spell of May and June was responsible for many deaths of young trees, yet, considering its intensity, it is remarkable that a larger number of deaths are not traceable to it. On the other hand, this unusual condition has prevented development of the usual heavy crop of grass and weeds on unclosed public parkings, the mowing of which forms a large item of expense each season.

The regulation of terrace heights throughout the city is proceeding satisfactorily, in spite of the many difficulties and the lack of cooperation on the part of applicants. There were 770 of these applications received during the year, and in determining action thereon, about 674 inspections were rendered necessary, equaling about seven-eighths of the total applications. Owing to the vast distance to be covered in visiting these locations, this office finds it difficult to attend to them as rapidly as desired, and with but one inspector it often becomes necessary to hold up action for several days, which gives rise to criticism. If this office were equipped with an automobile for these and other inspections, much valuable time would be saved and the efficiency of the service be much improved.

A brief summary of the work performed by the office force is as follows:

The writing and execution of 530 inspections, with an additional 674 terrace inspections; issuance and execution of 681 orders, necessitating the visiting of 2,666 locations; 532 official files acted on, involving the writing of 677 indorsements; 41 requests to surface division for paving, plumbing, etc.; forwarding of 26 pay rolls and special vouchers; 88 requisitions for supplies; 15 transfer vouchers; 170 supply bills were approved, recorded and transmitted to the proper authority; superintendent's recommendations originating here, 81; gas reports forwarded, 24, covering 64 separate locations; 172 letters mailed from this office to private individuals; 24 car ticket and stamp reports forwarded; preparation and forwarding of quarterly and annual property returns.

Summary.

Trees in streets, parkings, sidewalks, school yards and playgrounds at close of fiscal year 1910.....	97,954
Trees planted during fiscal year 1911.....	3,869
Trees removed during fiscal year 1911.....	2,214
	<hr/> 1,655

Trees in streets, parkings, sidewalks, school yards and playgrounds at close of fiscal year 1911.....	99,609
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In addition to these, 22 were removed from alleys and roadways, but did not diminish number included in official count.

Curb trees on streets at close of fiscal year 1910.....	96,926
Net increase of curb trees during fiscal year 1911.....	1,820
	<hr/> 98,746

¹ Not counted.

Mileage of trees at close of fiscal year 1910.....	550.70
Increase of mileage of trees, fiscal year 1911.....	10.34
	<hr/>
Mileage of trees at close of fiscal year 1911.....	561.04
	<hr/>
Mileage of tree-planted streets, close of 1910.....	275.35
Increase of mileage of tree-planted streets, 1911.....	5.17
	<hr/>
Mileage of tree-planted streets, close of 1911.....	280.52

Expenditures.

[Streets, District of Columbia, 1911, parking commission.]

LABOR.

Clerical and inspection work.....	\$2,486.49
Military duty with National Guard.....	20.75
Storm damage.....	538.39
Cultivating young street trees.....	2,226.46
Improvements and care of parkings.....	329.22
Extermination of insects.....	3,603.54
Miscellaneous repairs to boxes, etc.....	431.83
Mowing parkings and reservations.....	1,017.17
Nursery care and maintenance (making 4,000 boxes).....	2,304.41
Removing dead and dangerous trees.....	2,415.65
Trimming street trees.....	2,161.40
Wiring street trees in exposed places.....	4.32
Digging tree holes.....	6,245.76
Planting trees (including lifting trees in nursery).....	2,509.27
Yard maintenance.....	1,653.47
Gas searches.....	8.50
Watering young street trees.....	88.25
Labor Day payments (to laborers).....	92.75
	<hr/>
	\$28,137.63

MATERIALS, SUPPLIES, MISCELLANEOUS
REPAIRS, ETC.

Buggy and wagon findings and repairs.....	171.70
Drugs, horse medicines, etc.....	32.65
Electric current.....	20.10
Fertilizer and grass seed.....	113.05
Forage.....	2,001.48
Fuel.....	16.44
Furniture and office supplies.....	124.75
Horses.....	705.00
Iron and steel, horseshoes and pads.....	145.62
Leather straps.....	617.50
Lumber for boxes (stakes included).....	3,232.82
Lumber, miscellaneous.....	20.24
Nails, screws, bolts, etc.....	198.40
Paints, oils, and glass.....	133.87
Rope.....	50.21
Spraying apparatus (including hose).....	1,350.64
Spraying materials, engine equipment, etc.....	243.60
Soil.....	465.30
Stable supplies, equipment for teams.....	143.91
Stationery and printing.....	119.58
Tools and agricultural implements.....	378.50
Telegram and telephone calls.....	.90
Sundries.....	63.64
	<hr/>
	10,349.90

By appropriation, fiscal year 1911.....	\$37,500.00	
By repayments, fiscal year 1911.....	1,067.75	
To balance appropriation unexpended.....	\$80.22	
	<hr/>	
	38,567.75	38,567.75

[Streets, District of Columbia, 1911-12, parking commission]

LABOR.

Extermination of insects, spraying for—		
Terrapin scale (tulip poplar).....	\$5.25	
Elm-leaf beetle (American elm).....	538.50	
Tussock moth (Norway maples and lindens) .	142.00	
Webworm (Norway maples and lindens).....	170.00	
Extermination of insects, clipping branches for tussock moth and webworm (Norway maple and linden).....	68.00	
	<hr/>	
		\$923.75

MATERIALS, SUPPLIES, MISCELLANEOUS
REPAIRS, ETC.

Apparatus (spraying machine and accessories).....	1,352.50	
Engine equipment, spraying materials, etc.....	2,659.60	
	<hr/>	
		4,012.10
Traveling expenses from Washington to Boston, Mass., and return.....	32.41	
By appropriation, fiscal year 1911-12.....		\$5,000.00
By repayments, fiscal year 1911-12.....		172.96
To balance of appropriation forwarded to 1912.....	204.70	
	<hr/>	
	5,172.96	5,172.96

Expenditures from miscellaneous appropriations.

[Exclusive of parking commission.]

	Direct charge.	Through repayment.
Miscellaneous trust-fund deposits.....	\$2,185.55	\$836.27
Elimination of grade crossings:		
Improvement of the plaza.....	346.25	231.48
Purchase of land, grading, etc.....	302.21	
Public playgrounds, maintenance, etc.....	11.00	
Improvements and repairs:		
Paving roadways under permit system.....	2.38	
Curbs and sidewalks.....	43.00	
Southeast schedule.....	3.00	
Northwest schedule.....	18.63	
Repairs to county roads.....	23.90	
Grading streets, roads, and alleys.....	18.88	
Repairs to streets.....	533.53	
Assessment and permit work.....	1,139.46	
Total.....	<hr/> 4,627.79	<hr/> 1,067.75

Statement of sums expended during the year for employment of per diem employees, paid from appropriation "Streets, District of Columbia, 1911, parking commission."

Promoted 1 inspector, 104 days, at \$3.25.....	\$338.00
Promoted 1 inspector, 178 days, at \$3.75.....	667.50
Promoted 1 copyist, 307 days, at \$3.....	921.00
Total.....	<hr/> 1,926.50

Statement showing sums expended during the year for the purchase and maintenance of horses, carts, and wagons, together with amounts paid for cart hire and wagon hire.

[NOTE.—These items included in material list.]

Horses, forage, wagons, and miscellaneous equipment and repairs.....	\$3, 200. 36
Cart hire, 1,685+ days, at \$2.25 per day.....	\$3, 791. 34
Wagon hire, 579½ days, at \$4 per day.....	2, 317. 00
	<hr/>
Total.....	9, 308. 70

Respectfully submitted.

TRUEMAN LANHAM,
*Superintendent of Trees and Parking,
District of Columbia.*

Capt. MARK BROOKE,
*Corps of Engineers, United States Army,
Assistant to the Engineer Commissioner,
District of Columbia.*

REPORT OF SPECIAL ASSISTANT COUNSEL ON GRADE DAMAGES.

WASHINGTON, July 6, 1911.

SIR: In the matter of the appraisalment of the damages which have resulted to real property in the District of Columbia by reason of the changes made in the grades of streets, avenues, and alleys in connection with the Union Railroad Station and terminal work, I have the honor to submit the following report for the fiscal year which ended June 30, 1911.

There were 84 claims for damages heard and determined by the grade-damage commission during the year, involving 177 pieces of realty. In 31 of these cases, involving 45 pieces of property, damages were awarded land owners aggregating \$19,045, while in 53 of the cases, involving 132 properties, the commission awarded no damages whatever to the claimants, upon the ground that the damages alleged to have resulted to the properties under consideration had been offset by the benefits and advantages shown to have accrued to the property in consequence of the elimination of grade crossings, the establishment of the Union Railroad Station and terminals, and the works, buildings, and improvements incidental thereto.

The sum of \$3,575 was saved to the District during the year by the compromise of six cases in which jury trials had been ordered by the court, upon the filing by the Commissioners of the District of Columbia of expressions of dissatisfaction with appraisements made by the grade-damage commission, as will hereinafter appear.

During the year there were six petitions for damages filed, which make a total of 856 petitions that have been filed with the clerk of the Supreme Court of the District of Columbia since the passage of the grade-damage act.

The appraisements made by the commission during the year were as follows:

Lot.	Owner.	Award.
Property abutting on H Street NE., between North Capitol and First Streets, in square 676:		
Lot 6 and the east one-half of lot 7.....	James J. Corridon.....	Nothing.
Lots 50, 51, 52, 55, 56, 57, 58, and 59.....	John C. Heald.....	Nothing.
Lot 53.....	Nora Maguire.....	Nothing.
Lots 69, 70, 71, 72, and 73.....	Bridget Babbington.....	\$800. 00
Lot 20.....	Robert A. Dore.....	Nothing.
Property abutting on Jackson Street NE., between North Capitol and First Streets, in square 677:		
The east half of sublot 84.....	.....do.....	200. 00
The east half of sublot 106.....	.....do.....	Nothing.
Sublot 109.....	.....do.....	500. 00
Lot 82.....	Bridget McMahon.....	400. 00
Lot 107.....	Johana Barnes.....	200. 00
Lot 92.....	Patrick A. Ford.....	Nothing.
The east half of sublot 104 and the west half of sublot 105.	Mary M. Dore.....	Nothing.
Lot 81.....	Harry T. Barton.....	1, 000. 00
Property abutting on T Street NE., between Third and Fourth Streets, in square 3615:		
Lot 20.....	George Truesdell.....	Nothing.
Property abutting on T Street NE., between Third and Fourth Streets, in square 3609:		
Lots 5, 6, 7, 8, and 9.....	.....do.....	Nothing.

Lot.	Owner.	Award.
Property abutting on North Capitol Street NE., between H and I Streets, in square 677:		
Sublot 36.....	Martin A. Curtin.....	Nothing.
Property abutting on G Street NE., between North Capitol and First Streets, in square 677:		
Part of lot 21 and 22.....	James W. Peters.....	Nothing.
Part of sublot 21.....	Mary O'Connell.....	Nothing.
Parts of sublots 20 and 21.....	Ida I. Collins.....	Nothing.
Sublots 17, 18, 19, and 20.....	Robert A. Dore.....	Nothing.
Sublot 16.....	Martin A. Curtin.....	Nothing.
Lot 15.....	Anne Flanagan.....	Nothing.
East one-half of lot 15.....	Rosilla Hersher.....	Nothing.
Lot 17.....	Bridget Ready and Daniel J. Ready.....	Nothing.
Property abutting on North Capitol Street between G and H Streets, in square 630:		
Lot 6.....	Edward N. Fenno and J. Brooks Fenno, executors of will of J. Brooks Fenno, deceased.....	Nothing.
Property abutting on D Street NE., between North Capitol and New Jersey Avenue, in square 630:		
Sublots 1 and 2.....	Mary A. Thomas.....	5,000.00
Property abutting on D Street NE., between North Capitol and First Streets, in square 684:		
Part of lot A.....	Louise Dahler.....	1,000.00
Property abutting on D Street NE., between First and Second Streets, in square 723:		
Sublot 27.....	George B. Ellis.....	100.00
Lot 26.....	J. S. Gruver.....	200.00
Property abutting on D Street NE., between First and Second Streets, in square 724:		
Sublot 17.....	Costanzo Spugnardi and Madalena Spugnardi.....	150.00
Property abutting on First Street NE., between C and D Streets, in square 724:		
Lot 44.....	Henry J. Keough.....	800.00
Lot 43.....	Margaret E. Cox.....	275.00
Lot 42.....	Simon Carmody, Catherine Hough, Mary Kershaw, Margaret Redmond, Joseph M. Carmody and Francis S. Carmody.....	200.00
Parts of lots 14 and 16.....	Carrie M. Lucas, Annie J. Backus and Oliver R. Carr.....	250.00
The north 13.50 feet front by full depth of original lot 12.....	Sarah E. McCann.....	125.00
Part of lot 12.....	George J. Nash.....	125.00
The south 13.48 feet front of lot 12.....	Patrick J. Bresnahan, Nora B. McMahon, and Ida B. Reidy.....	100.00
Property abutting on T Street NE., between Fourth and Fifth Streets, in square 17:		
Lots 19, 31, 32, 33, 34, 35, 36.....	City & Suburban Ry. Co.....	Nothing.
Property abutting on Virginia Avenue SE., between Third and Fourth Streets, in square 796:		
The west 22.8 feet of original lot 3.....	Mary M. C. Byrne.....	Nothing.
Part of original lot 3.....	Agnes M. Byrne.....	Nothing.
The east 17 feet and 2 inches of original lot 3.....	Rita D. Byrne.....	Nothing.
Property abutting on Virginia Avenue SE. between Third and Fourth Streets, in square 797:		
Lots J and 8.....	Mary Dougherty, D. J. Sullivan, heirs of John Sullivan.....	Nothing.
Property abutting on Canal Street between First and Second Streets, and on First Street between H and I Streets SW. in square 737:		
Lots 28, 30, 31, 32, 33, 34, 35, and the east 4 feet front by the depth of lot 29, and lots 64 and 65.....	William W. Danenhower and Elizabeth S. Danenhower.....	Nothing.
Property abutting on D Street SW., between First and Second Streets, in square 733:		
Lot 7.....	Mary C. Chelini.....	Nothing.
Property abutting on D Street, between South Capitol and First Streets, in square 691:		
Part of original lot 2.....	Henry S. Crowell.....	Nothing.
Property abutting on D Street SE., between South Capitol and First Streets, in square 693:		
Lot 14.....	Henry F. Lerch.....	Nothing.
Lot 60.....	Mary F. Wynkoop.....	Nothing.
Property abutting on G Street NE., between Second and Third Streets, in square 753:		
Lots 71 and 72.....	Clara L. Hill.....	Nothing.
Lot 31.....	William K. Hill.....	Nothing.
Sublots 36, 37, 38, 39, 40, and 41.....	do.....	Nothing.
Lot 95.....	American Security & Trust Co., trustee.....	Nothing.

Lot.	Owner.	Award.
Property abutting on Colfax Street NE., between L and M Streets, in square 712:		
Lot 33.....	George B. Mullin.....	Nothing.
Lot 34.....	Stephen Mason Chase.....	Nothing.
Lot 35.....	Antonio Malnati.....	Nothing.
Lots 27, 36, 37, 38, and 39.....	Samuel Maddox.....	Nothing.
Part of lot 40.....	Michael Flynn and Dennis Connor, trustees, and Bridget Murphy.....	Nothing.
Lots 78 and 79.....	Lendell A. Connor.....	Nothing.
Lot 81.....	Andrew J. Green, Alice P. Trapier, Annie D. Trapier, Edith R. Trapier, Cornelia Bradford, Hess A. Trapier, and Andrew J. Green, trustee.....	Nothing.
Lots 82, 83, and 84.....	George B. Clark.....	Nothing.
Property abutting on Second Street NE., between E and F Streets, in square 754:		
Lots 103, 104, 105, and 106.....	William Frye White.....	\$2,400.00
Property abutting on D Street SW., between Ninth and Tenth Streets, in square 387:		
Original lot 28.....	Floyd E. Davis.....	60.00
Lot 26 and the east part of lot 25.....	Susan Cooper.....	70.00
The west part of lot 25.....	Fred S. Yount.....	75.00
The east half of lot 24.....	Howard M. Pruden, executor of the will of William Worrell.....	85.00
The west one-half of original lot 24.....	James M. Hall.....	75.00
Property abutting on the southeast corner of Tenth and D Streets SW., in square 387:		
Lots 22 and 23.....	Ryland Methodist Episcopal Church.....	1,000.00
Property abutting on Tenth Street SW., between D and E Streets, in square 353:		
The north 26 feet of lot 10.....	Helen A. Desmond and John J. Desmond.....	30.00
Property abutting on D Street SW., between Tenth and Eleventh Streets, in square 353:		
Original lot 9.....	Jane S. Clark, Edward B. Clark, James M. Clark, Sue Barrett Watkins, Annie M. Haldeman, and William A. Milton.....	500.00
The east 24 feet 10 $\frac{1}{2}$ inches of lot 8 and part of lot 7.....	Henrietta Hofpenmaier.....	225.00
The west 49 feet 10 $\frac{1}{2}$ inches of lot 8.....	George E. Walker and Charles J. Walker, executors under the will of William T. Walker, deceased, and Thomas H. Walker.....	300.00
Property abutting on Maryland Avenue SW., between Eleventh and Twelfth Streets, in square 327:		
Sublot 23.....	Matilda Brunner.....	Nothing.
Sublot 22.....	Louise M. Holmead.....	Nothing.
Sublot 18.....	Clara I. Marr.....	Nothing.
Property abutting on First Street NE., between D and E Streets, in square 723:		
Lot 86.....	John B. Lord.....	\$1,800.00
Property abutting on Seventh Street SW., between C and D Streets, in square 434:		
Lots 1, 2, and 3.....	Margaretha Weideman, Clarence C. Weideman, and Augerite E. Weideman.....	100.00
Property abutting on Third Street SW., between D and E Streets, in square 536:		
Part of lot 39.....	Annie Ford.....	Nothing.
Lots A, B, C, D, E, F, R, sub 6, 18, and 19.....	James F. Barbour.....	Nothing.
Property abutting on Virginia Avenue SW., between Second and Third Streets, in square 581:		
Lots 22, 23, and 24.....	Henry F. Lerch, Minnie R. Lerch, Louise F. Sauter, Sophia Weber, Henrietta Seidenspinner, Emilia Seidenspinner, Frederick C. Huth, and Lisetta Bieber.....	Nothing.
Property abutting on Virginia Avenue SW., between First and Second Streets, in square 584:		
The west 15.08 feet front by the full depth of lot 22.....	George W. Smithson.....	Nothing.
The west 15.09 feet front by the full depth thereof of lot 21.....	do.....	Nothing.
Lots 18 and 20.....	Eberhard Trusheim.....	Nothing.
The west 16.37 feet front by the full depth thereof of lot 17.....	Catharine Glennan.....	Nothing.
The east 15.09 feet front by the full depth thereof of lot 16.....	George W. Smithson.....	Nothing.
Property abutting on Myrtle Street NE., between First and North Capitol Streets, in square 675.....	Catharine Glennan.....	Nothing.

Lot.	Owner.	Award.
Property abutting on Virginia Avenue SW., between Second and Third Streets, in square 641: Lots 10, 11, 12, 13, and 14.....	Anheuser-Busch Brewing Association.	Nothing.
Lots 1, 20, and the east 15.12 feet of lot 3.....	Martin Weigand, Mrs. Elizabeth A. Wiegand, Edward Tripp, Mrs. Catherine E. Miller, Miss Margaret E. Tripp, Mrs. Anna E. Monk, and Mrs. Clara M. Tripp, as guardian of the person and estate of Ernest Tripp and Dorothy Tripp, sole heirs of Henry E. Tripp, deceased.	Nothing.

There are but two cases remaining for the consideration of the grade-damage commission—that of Abbie Paul, owner of part of lot 108, in square 677, improved by premises No. 54 Jackson Street, and the case of the Real Estate & Improvement Co. of Baltimore City, the owner of lot 30, in square 719; lots 23 to 40, both inclusive, lots 82, 84, 85, 86, 72 to 81, both inclusive, 92 to 99, both inclusive, 135 to 141, both inclusive, in square 720; and lots 65 to 70, both inclusive, lots 83 and 84, lots 88 to 95, both inclusive, and lots 205 to 209, both inclusive, in square 721.

Appraisements were made by "appeal juries" during the year, as follows:

Lot.	Owner.	Appraisalment.
Property abutting on E Street NW., between North Capitol and First Streets, in square 628: Parts of lots 61 and 62.....	Eva Harriett Bishop.....	\$2,750.00
Parts of lots 65 and 66.....	Bessie J. Kibbey.....	2,000.00
Property abutting on New Jersey Avenue, between D and E Streets NW., in square 630: Part of original lot 4.....	Joseph T. Ferry and J. Frank Ferry.	1,650.00
Property abutting on North Capitol Street, between E and F Streets, in square 628: Lots 40, 41, 42, 43, 156, 157, and 158.....	Anheuser-Busch Brewing Association.	Nothing.
Lots 159, 160, 161, and 162.....	Albert Carry.....	Nothing.

An "appeal jury" now has under consideration the petitions for damages filed by the owners of lots 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 15, 16, 17, 18, 19, and 20, in square 773. The grade-damage commission returned appraisements of "nothing" in respect of these lots and the case was submitted to the "appeal jury" upon expressions of dissatisfaction with the appraisements of the commission, filed by the property owners.

The following is a complete list of the cases awaiting trial by "appeal juries":

Part of lot 13, in square No. 752, improved by premises 720 Third Street NW., Theodore Livings, petitioner, owner.

Lot 95, in square No. 628, improved by premises No. 501 New Jersey Avenue NW., William J. Acker, petitioner, owner.

Lots 20, 21, 22, 23, 24, and 25, and part of lot 6 and the improvements thereon, in square 630, William J. Acker and Franklin J. Acker, petitioners, owners.

Sublots 30, 31, 32, 33, 34, and 35, in square 680, Ellen M. Morse, Alexander Porter Morse, Daniel B. Clarke Waggaman, and the Union Trust Co., trustees, petitioners.

Sublots 29, 36, and 37, and the improvements thereon, in square 680, Samuel C. McDowell, petitioner, owner.

Part of lot 4, in square 684, improved by premises 315 and 317 Delaware Avenue NE., Frederick B. Dalrymple and Annie E. Dalrymple, petitioners, owners.

Lots 90 and 91, in square 723, improved by premises 417 and 419 First Street NE., Sarah Barnum Hinds, petitioner, owner.

Lot 92, in square 723, improved by premises 421 First Street NE., George B. Rose, petitioner, owner.

Lot 19, in square 723, improved by premises 169 Massachusetts Avenue NE., Augusta Hoffa, petitioner, owner.

Lot 21, in square 722, improved by premises 128 Massachusetts Avenue NE., Mary E. Sage, petitioner, owner.

Lot 20, in square 722, improved by premises 130 Massachusetts Avenue NE., Margaret A. Casey, petitioner, owner.

Lot 18, in square 722, improved by premises 134 Massachusetts Avenue NE., Mary D. Sutton, petitioner, owner.

Part of original lot 13, in square 719, improved by premises 736 Second Street NE. (formerly known as premises 145 H Street NE.), Maurice J. Sheehan, petitioner, owner.

Part of lot 33, in square 625, improved by premises 638 North Capitol Street, Mary E. McCarthy, petitioner, owner.

Sublots 17, 18, 19, and 20, in square 677, improved by premises 24, 26, 28, 30, and 32 G Street NE., Robert A. Dore, petitioner, owner.

Lot 42, in square 724, improved by premises 339 First Street NE., Simon Carmody, Catherine Hough, Mary Kershaw, Margaret Redmond, Joseph M. Carmody, and Francis S. Carmody, petitioners, owners.

Lot 1, in square 880, Rignald W. Beall, petitioner, owner.

Part of lot 1, in square 880, improved by premises 620 K Street SE., and part of original lot 2, in said square, improved by premises 600 K Street SE., John L. Mahoney, petitioner, owner.

Part of lot 2, in square 880, improved by premises 612 K Street SE., Mary Dougherty, petitioner, owner.

Sublots 4 and 5, in square 880, and the improvements thereon, William L. Mahoney, petitioner, owner.

Sublots 38 and 39, in square 737, improved by premises 101 and 103 H Street SE., Albert Carry, petitioner, owner.

Parts of original lots 11 and 12, in square 434, improved by premises 301, 303, 305, and 307 Seventh Street SW., William Lowenthal, petitioner, owner.

Lots 16 and 17 and part of lot 11, in square 464, improved by the Virginia Flats, the Capitol Construction Co., petitioners, owners.

Original lot 9, in square 353, containing 8,988.3 square feet, and the improvements thereon, Jane S. Clark, Edward D. Clark, James M. Clark, Sue Barrett Watkins, Annie M. Haldeman, and William A. Milton, petitioners, owners.

Lot 20, in square 3615, and the improvements thereon, and lots 5, 6, 7, 8, and 9, in square 3609 (in Eckington), George Truesdell, petitioner, owner.

Objections and exceptions to the verdict of an "appeal jury" in respect of certain properties in square 626, referred to in my report of last year, were filed by the commissioners, but they have not yet been disposed of. The objections and exceptions will probably be heard some time during the next term of the court.

The compromises effected with landowners during the year in cases wherein jury trials had been ordered by the court upon the application of the Commissioners of the District of Columbia were as follows:

Lot.	Owner.	Award.	Compromise.
Lot 63, square 628.....	C. C. Purcell et al.....	\$2, 450	\$2, 150
Lots 65 and 66, square 628.....	Bessie J. Kibbey.....	2, 500	2, 000
Lots 64 and 65, square 723.....	Michael B. Harlow.....	4, 075	3, 250
Lot 70, square 723.....	Harrie F. Wheat.....	2, 000	1, 600
Lot 77, square 723.....	Isabel H. Weber.....	1, 250	1, 000
Lots 1 and 2, square 630.....	Mary A. Thomas.....	5, 000	3, 700

At the close of the year the sum of \$35,100 had been saved to the District by the compromise of 80 of the cases in which appraisements of the grade-damage commission were disapproved by the commissioners.

The total amount paid out by the District in settlement of grade damages up to the close of the year was \$439,498.10.

In conclusion I take pleasure in acknowledging the industry and efficiency of Mr. Leonard P. Bradshaw and Mr. M. K. Varnell, my assistants, in the discharge of their respective duties during the year.

I have the honor to be, very respectfully, yours,

A. LEFTWICH SINCLAIR,
Special Assistant Counsel, District of Columbia.

Capt. MARK BROOKE,
Corps of Engineers, United States Army,
Assistant to the Engineer Commissioner,
District of Columbia.

SUBSURFACE AND BUILDING DIVISION.

Capt. EDWARD M. MARKHAM,

Corps of Engineers, United States Army, Assistant to the Engineer Commissioner, in Charge.

WATER DISTRIBUTION.....	W. A. MCFARLAND, <i>Superintendent Water Department.</i>
WATER RATES.....	G. W. WALLACE, <i>Water Registrar and Chief Clerk, Water Department.</i>
SEWER CONSTRUCTION AND MAINTENANCE.....	ASA E. PHILLIPS, <i>Superintendent of Sewers.</i>
BUILDING INSPECTION.....	MORRIS HACKER, <i>Inspector of Buildings.</i>
BUILDINGS AND REPAIRS TO BUILDINGS.....	SNOWDEN ASHFORD, <i>Municipal Architect.</i>
PLUMBING PLANS AND INSPECTION.....	A. R. MCGONEGAL, <i>Inspector of Plumbing.</i>
GAS AND METER INSPECTION.....	E. G. RUNYAN, <i>Inspector of Gas and Meters.</i>
PERMITS.....	H. M. WOODWARD, <i>Permit Clerk.</i>
AUTOMOBILE BOARD.....	H. M. WOODWARD, <i>Secretary, Automobile Board.</i>
ELECTRICAL DEPARTMENT.....	W. C. ALLEN, <i>Electrical Engineer.</i>

REPORT OF ASSISTANT IN CHARGE.

OFFICE OF THE ENGINEER COMMISSIONER
OF THE DISTRICT OF COLUMBIA,
Washington, October 1, 1911.

MAJOR: I have the honor to forward herewith reports of the divisions of the engineer department under my charge, for the fiscal year ended June 30, 1911, being the reports of the superintendent of the water department, the superintendent of sewers, the inspector of buildings, the municipal architect, the inspector of plumbing, the inspector of gas and meters, the permit clerk, the automobile board, and the electrical engineer.

Very respectfully,

EDWARD M. MARKHAM,
*Captain, Corps of Engineers, United States Army,
Assistant to the Engineer Commissioner.*

Maj. WM. V. JUDSON,
*Corps of Engineers, United States Army,
Engineer Commissioner, District of Columbia.*

REPORT OF THE SUPERINTENDENT OF THE WATER DEPARTMENT'

WASHINGTON, September 9, 1911.

SIR: I have the honor to submit the following report of the operations of the water department for the year ending June 30, 1911:

The cash collections for the year amounted to \$633,452.70; \$74,000 was appropriated by Congress for special projects, while unexpended balances from previous allotments, deposits for special work, etc., brought the total available funds for the year up to \$818,092. (See Table 1.) The total disbursements were \$730,893.58, leaving a nominal balance of \$87,198.42 for beginning the new year.

The general distribution of expenditures for the past three years has been as follows:

Items.	1908-9	1909-10	1910-11
	<i>Per cent.</i>	<i>Per cent.</i>	<i>Per cent.</i>
New work.....	42.2	56.8	59.2
Operation.....	40.8	33.2	29.6
Repairs.....	12.5	8.1	8.4
Replacement of old work.....	4.5	1.9	2.8

The financial condition of the department is such that the installation of 5,000 meters, to be paid for from current revenues, is anticipated during the coming year.

During the year 152,066 feet, or 29 miles, of water mains of all sizes were laid, 19,000 feet being trunk mains of 20-inch diameter or larger.

This is an increase of 9,933 feet, or 7 per cent, over the length laid during the preceding year, and gives a total length of 2,774,171 feet, or 525 miles, in the entire distribution system.

A detailed statement of routine work accomplished is given in the accompanying tables, and much data of interest will be found in the reports of the several divisions following.

The mean daily consumption of water by the entire system during the year was 60,380,000 gallons which, on a basis of 340,000 population, gives 178 gallons per capita per day.

A summary of the duties assigned to each division of the department, and of the results accomplished, follows; each division and subdivision report is in general written by the head of that division.

DIVISION A.—*Maintenance and extension of distribution system.*

[J. S. GARLAND, assistant engineer, in charge.]

SUBDIVISION A2.—*General engineering.*

The work of this subdivision consists in the preparation of plans and estimates for water main extensions and allied constructions, in all field work and records incident to the carrying out of these plans, and in engineering work of a miscellaneous character.

The subdivision is in charge of Mr. D. W. Holton, assistant engineer.

The work accomplished during the year included:

Surveys for the location of proposed new mains.....	320
Total number of surveys on which levels were necessary.....	186
Surveys for the location of proposed new fire hydrants.....	111
Surveys for the location of proposed new horse fountains.....	12
Survey for the location of proposed new sanitary fountain.....	1
Surveys for the location or rearrangement of mains, by-passes, and connections..	40
Surveys for lowering water mains.....	6
Surveys for private services, 3 to 6 inch.....	14
Preliminary surveys to ascertain if street is on approved grade (this work is in advance of the ordering of water mains).....	109
Surveys for drains.....	10
Investigation of water service complaints.....	14
Fire hydrant elevations established.....	66
Levels to establish grades for fire hydrants, drains, etc.....	30
Levels to establish elevations to bench marks, etc.....	16
Monthly pressures taken six times at 100 fire hydrants distributed over entire water service area in the District.....	
Other fire hydrant pressures taken.....	35
Staking for valves.....	8
Staking for meter vaults.....	3
Staking for public hydrant.....	1
Taking measurements for test pits for location and elevation of underground construction.....	12
Finished field notes of completed work turned in.....	639
Total number of visits to work in progress.....	1,358
Locations of old mains, buildings, etc., taken and turned in.....	25

Total number of feet of water main of various sizes ranging from 2 to 36 inches, inclusive, laid was 152,066.37, which represents approximately the total number of feet of water main lines surveyed.

All survey, field, and record sheets of proposed and completed work were filed and indexed.

The work of installing new fire hydrant pressure cards in place of old ones is practically up to date.

Samples of earth taken from water department trenches have been collected and indexed. Total number of samples obtained up to the end of the fiscal year, 573. Elevation of point at which sample of earth was taken was established and its location with reference to street intersections was made, both of which were recorded on index cards.

This branch embraces all engineering work on sub surface constructions, which are daily inspected and field locations made as work progresses.

Previous to the laying of water mains this branch examines the plans, passes upon the construction, and prepares bills of material for all projects.

Estimates and specifications for cast-iron pipe and special castings required for the 16 and 20 inch mains for Congress Heights and Benning, which work is in progress under appropriation act of 1912; also special castings for sizes 3 to 12 inches, inclusive, to be used by the water department for the fiscal year ending 1912, were prepared by this subdivision.

Under special appropriation act of Congress the water department was authorized to extend water main to Congress Heights. The work was begun early in the fiscal year and practically completed to the south wall of the United States Government Hospital for the Insane on Nichols Avenue SE.

The source of supply was from the trunk water main in Kentucky and Potomac Avenues SE.; from this point a 30-inch cast-iron water pipe was laid in Kentucky Avenue to the Pennsylvania Avenue Bridge. On the west span of the bridge a 24-inch flanged steel pipe was placed, necessitating minor changes in north sidewalk of the bridge in order that this water pipe should not decrease, to any great extent, the headroom over the railroad tracks. On the deck section of the bridge there was placed a 30-inch steel-flanged pipe with necessary expansion joint. From the bridge to Minnesota Avenue a 30-inch cast-iron pipe was laid. From Pennsylvania Avenue along Minnesota Avenue, Good Hope Road, Fourteenth Street, W Street, and Nichols Avenue a 20-inch cast-iron water pipe was laid. The total number of feet of water main laid under this appropriation during the fiscal year was 19,420.

A line of survey was run through Minnesota Avenue as proposed in the street extension plans, District of Columbia, from Pennsylvania Avenue SE. to Benning, in order to ascertain the possibility of securing a right of way for a 20-inch water main to be laid in 1911-12 through the undedicated portions of Minnesota Avenue, but owing to the difficulty in getting consent of the several property owners this project was abandoned. However, a survey was made through Anacostia Road for the line of 20-inch water main.

Owing to the continued settling of First Street east over the railroad tunnel, it was necessary to examine the condition of the 30 and 20 inch trunk mains crossing First Street at East Capitol Street and B Street north. At East Capitol Street it was found that a settlement of over 12 inches had taken place, causing the joints to be pulled and placing the 30-inch trunk water main in a dangerous condition, necessitating the relaying of this water main for a distance of about 150 feet. To do this work it was necessary to maintain water service to the southeast section of the city, and a 20-inch by-pass of extra heavy pipe was constructed to the south before the relaying of the 30-inch pipe could be undertaken. It was also found necessary to relay the 20-inch water main in B Street, this main being in imminent danger of breaking, caused by the settling of the street over the railroad tunnel.

Early in the fiscal year there occurred a serious break in the west 30-inch trunk water main in New Jersey Avenue at D Street NW. This main was imbedded in the roof of the old Tiber Creek sewer, and over the main and resting upon it was the concrete foundation of the street railway track. Owing to the shallowness of the trunk sewer, it was necessary to abandon the old line of water main and construct a new 20-inch by-pass to the west. It was found that the 30-inch water main north of D Street was in need of considerable adjustment, and this section was relaid and put in proper condition.

A new 12-inch water main was installed in the north side of G Street for an additional water supply to the Government Printing Office. This service was connected with both 30-inch trunk mains in New Jersey Avenue. This 12-inch main and another 12-inch main leading from H Street are the only services now supplying the Government Printing Office, all smaller services having been abandoned.

Owing to the large increase of work, another field party was added to this subdivision in April.

A very important 12-inch main, with subsidiary 8-inch mains, was laid under special act of Congress in Conduit Road NW., between Eliot Place and Weaver Terrace NW. The 8-inch lines were laid in Forty-seventh Place, Ashby Street, Edmund Street, and Sherrier Place NW.

Other 12-inch mains were laid as follows:

In Fessenden Street NW. between Forty-seventh Street and Wisconsin Avenue, and in Forty-seventh Street, between Fessenden and Brandywine Streets, to furnish trunk feed to American University Park.

In Fourth Street NE. between Channing and Franklin Streets; in Franklin Street, between Fourth and Seventh Streets; in Seventh Street, between Franklin and Hamlin Streets, and in Hamlin Street, between Seventh and Tenth Streets NE. The purpose

of this main is to furnish a through trunk feed from Second and Channing Streets NE. to Brookland and vicinity.

In Pennsylvania Avenue SE. between Minnesota Avenue and Twenty-eighth Place, to furnish fire protection and to give water service to the new fire-engine house.

In Keokuk Street NW., between Belt Road and Connecticut Avenue, to afford an adequate supply to the old 6-inch main in Connecticut Avenue, between Military Road and Chevy Chase Circle.

In Mount Pleasant Street NW. between Irving Street and Columbia Road and across Columbia Road at Sixteenth Street, to reenforce the second high service in territory north of Columbia Road.

In Connecticut Avenue between Florida Avenue and California Street NW., to reenforce second high service in Washington Heights.

In R Street NW., west from Twenty-second Street, to give a full 12-inch service to the territory in the vicinity of Sheridan Circle.

In P Street NW. between Thirty-fifth and Thirty-seventh Streets and in Thirty-seventh Street between O and P Streets, to carry second high service to Georgetown University for better fire protection.

In Keokuk Street, east from Connecticut Avenue, to furnish trunk service to territory east of Connecticut Avenue.

At Fort Reno within the past year the new pumping station was completed. A 20 by 12 inch and 12 by 12 inch connection for intake and outlet, respectively, were made to the new pump for supplying Reno tower. Surveys were also made and grades given for foundation and drain of the new garage, and cross-section levels were run in the vicinity. Grades were also given for new Reno property yard wall.

A battery of three 3-inch meters was installed at First and K Streets NE. on the 12-inch main to the Washington Terminal Co.'s power plant.

SUBDIVISION A 3.—*Care of property.*

The work of this subdivision consists in receiving, inspecting, recording, storing, and issuing all material bought for the use of all branches of the department; preparing quarterly returns of unexpended property, and in preparing lists of unserviceable property for condemnation and sale.

The property office, located in the District pumping station on Bryant Street, is open at all times, day and night. Mr. S. Q. Kline, storekeeper, has charge, and has regularly under his orders 1 assistant storekeeper, 4 skilled laborers, 1 pipe inspector, 5 laborers, and 2 watchmen.

SUBDIVISION A 5.—*Care and recording of valves, fire hydrants, etc., and care of reservoirs.*

This subdivision is charged with caring for and making and maintaining complete records of all valves, fire hydrants, street hydrants, etc.; with the execution of miscellaneous plumbing, and with general supervision of Brightwood and Reno Reservoirs.

There have been cared for during the year 7,384 stop valves, 2,903 fire hydrants, 217 street hydrants, 140 drinking fountains for horses, and 58 wells.

This subdivision is in charge of Mr. Humphrey Beckett, from whose report the following summary is taken:

Number of valves operated and cleaned.....	9,609
Number of valves packed.....	395
Number of valves fitted with new keynut.....	6
Number of number plates placed on casings.....	646
Number of casings cleaned.....	1,828
Number of valves uncovered.....	65
Number of valves fitted with new stems:	
8-inch, 2-way.....	1
6-inch, 4-stem.....	13
6-inch, 4-way.....	18
6-inch, 3-stem.....	12
6-inch, 3-way.....	7
6-inch, 2-way.....	11
4-inch, 2-way.....	7
3-inch, 2-way.....	10
Number of 4-stem valves fitted with heavy stems and gates complete.....	4
Number of valves from which gates were removed.....	2
Number of by-pass valves installed:	
3-inch.....	1
2-inch.....	1
1½-inch.....	4

Number of 2-inch 2-way valves installed.....	3
Number of reducing valves removed.....	1
Number of air valves installed:	
3-inch.....	1
2-inch.....	9
1½-inch.....	20
1¼-inch.....	3
1-inch.....	4
¾-inch.....	2
Number of air valves repaired.....	2
Number of air valves abandoned.....	2
Number of gauge connections installed.....	2
Number of valve casings installed.....	1
Number of indicator posts erected.....	27
Number of indicator posts painted.....	43
Number of indicator posts numbered.....	32
Number of indicator posts replaced.....	1
Number of fire hydrants inspected.....	33, 440
Number of fire hydrants repaired.....	1, 529
Number of fire hydrants lubricated.....	3, 671
Number of fire hydrants painted.....	813
Number of fire hydrants reversed.....	1
Number of fire hydrants strapped.....	2
Number of drinking fountains for animals erected (new location).....	10
Number of drinking fountains for animals abandoned.....	3
Number of drinking fountains for animals adjusted.....	3
Number of drinking fountains for animals repaired.....	143
Number of drinking fountains for animals cleaned.....	3, 201
Number of sanitary fountains erected (new location).....	2
Number of sanitary fountains erected in place of old.....	4
Number of sanitary fountains repaired.....	14
Number of public hydrants erected (new location).....	8
Number of public hydrants erected in place of old.....	13
Number of public hydrants abandoned.....	20
Number of public hydrants repaired.....	150
Number of public hydrants adjusted.....	2
Number of drains to catch basins, fountains, etc., cleaned.....	4
Number of drains to catch basins, fountains, etc., repaired.....	1
Number of deep wells drilled and pumps installed (new location).....	2
Number of pumps installed in place of old.....	5
Number of pumps removed.....	1
Number of pumps repaired.....	39
Number of street washers installed (new location).....	1
Number of street washers installed in place of old.....	1
Number of street washers repaired.....	1
Number of street washers adjusted.....	2
Number of lead connections made for stock:	
2-inch.....	13
1½-inch.....	30
1-inch.....	19
¾-inch.....	7
Number of Smith cuts made:	
12 by 8 inch.....	1
12 by 6 inch.....	2
12 by 4 inch.....	2
12 by 3 inch.....	2
8 by 4 inch.....	1
4 by 3 inch.....	2
Number of intersections located.....	829
Number of 50-foot scale maps corrected owing to changes and new work.....	957
Number of index cards corrected owing to changes and new work.....	927
Number of index cards completed.....	263
Number of alley squares located.....	190
Number of alley squares completed.....	160
Number of cut-offs made for pitometer division.....	5
Number of cut-offs made owing to repairs or new construction.....	115
Number of new mains charged.....	7
Number of valves inspected to check normal position.....	26

Number of valves capped for service boundary.....	6
Number of examinations made for valves reported covered.....	9
Number of times service lines were changed.....	6
Number of inspections made of boundary line of third high service.....	1
Number of inspections made of boundary line of second high service.....	1
Number of complaints of foul water investigated.....	8
Number of complaints of lack of pressure investigated.....	10
Number of blow-offs flushed owing to complaint.....	15
Number of tests made to check doubtful cut-offs.....	5
Number of tests made to ascertain where houses were connected.....	4
Number of fittings strapped owing to high pressure.....	13
Number of new services installed.....	2
Number of service pipes repaired.....	39
Number of miscellaneous services changed.....	15

Flushed blow-offs in Pinehurst subdivision 6 times during year.

Caulked seams in divide wall at Brightwood Reservoir 7 times during the year.

In addition to this, service pipes were changed from old to new mains at the following locations:

Conduit Road NW., between Elliott Place and the reservoir;

Rhode Island Avenue, between Seventeenth and Eighteenth Streets NW.;

Bryant Street, between Second and Fourth Streets NW.;

Fifteenth Street, between S and T Streets;

Third Street, between East Capitol and A Streets NE.;

Service pipes were adjusted at the following locations:

K Street, between Connecticut Avenue and Eighteenth Street NW.;

G Street, between Tenth and Eleventh Streets NW.

Owing to the presence of algæ in Brightwood Reservoir, one basin only has been in service at a time. Each basin has been drained and cleaned twice during the year, making four times in all that the service has been fed from freshly cleaned basins.

Reno Reservoir, where the algæ does not seem to grow so fast, has been drained and cleaned once during the year. The fourth high-service tank at the Reno Reservoir was drained, cleaned, and repainted.

Samples of water are taken twice a week from each reservoir and delivered to the chemist at the filtration plant.

The wells at the school and engine houses were turned over to the water department during the year, and placed under this division. The old wells were thoroughly pumped out several times during the year, and the pumps kept in repair. Three new deep wells were drilled, one at Kenilworth School, one at Good Hope School, and the other at the Benning School. The water in the first two mentioned stood the required analysis, but at the Benning School it was condemned. There was another well started at Benning and Anacostia Roads NE., but owing to the appropriation provided to extend water mains to this locality after these contracts had been let, the well at the Benning School was not drilled deeper, and the contract for the well at Benning and Anacostia Roads was canceled.

A well was dug at Stanton and Elvans Avenues SE. to a depth of 53 feet, but the water was condemned and well abandoned. A deep well had previously proved a failure at this location.

The following miscellaneous work was done:

Kept indicator posts clear of weeds, etc.

Cut off and capped 6-inch main to Treasury Building.

Made survey for line of pipe at Occoquan, Va., from mill dam to proposed pumping station site.

Installed two 2-inch drip pipes in place of old on mains in Pennsylvania Avenue over Rock Creek.

Repaired broken 4-inch main at St. Dominick Church.

Inspected contract work (12 and 6 inch pipe) in Soldiers' Home grounds.

Fitted two 48-inch valves at Twenty-ninth and M Streets NW. with new gear axles.

Flushed Connecticut Avenue from L to K Streets with fire hose as an experiment in keeping street clean.

Assisted street-cleaning department in removing snow and ice from section between Pennsylvania Avenue, Massachusetts Avenue, Sixteenth and Twentieth Streets NW.

Installed 4-inch cast-iron down spouts at the District pumping station.

Installed angle valves around lake at the District pumping station.

Repaired closet at the Bryant Street stable twice during year.

Changed supply and waste to soak tub at the Bryant Street stables.

All public street washers are shut off during the winter months.

There were 1,934 written work orders received and recorded during the year.

An index record is kept of all valves operated, stating position in which valve is left, and condition of same at time of operation.

SUBDIVISION A-6.—*Laying mains, erecting fire hydrants, repairing leaks, etc.*

[Mr. S. H. HARDING, foreman in charge.]

All miscellaneous construction work, except of buildings and machinery, is done by this subdivision. For a statement of routine work accomplished attention is invited to Tables 3 and 4, appended hereto, where such work is described in detail. As will be noted, the total length of mains laid was about 29 miles.

The total number of leaks in water mains and appurtenances reported to this subdivision during the year was as follows:

	Trunk mains (16-inch and over).	Service mains (3 to 12 inch).	Service pipes.	Total.
Breaks.....	4	54	.....	58
Joints leaking.....	32	666	.....	698
Unclassified.....	2	33	570	605

In addition a large number of false reports were received and investigated. The leaks here referred to are such as showed on the surface of the ground and include none of those found by the regular underground survey carried on by Division F.

SUBDIVISION A-7.—*Building inspection and masonry construction.*

The work of this subdivision is under the direct supervision of Mr. James A. Fitzgerald, inspector, whose report follows:

Until September 17, 1910, the work of this division had been under the supervision of Mr. P. B. Grant, who at that time resigned to become superintendent of construction in the office of the municipal architect.

During the first part of the year the work was variable, requiring the services of bricklayers, carpenters, watchmen, masons, cement workers, plumbers, and from 1 to 11 laborers.

The work of making concrete rings and filled covers for valve casings was continued by this division up to the time of Mr. Grant's departure, when it was transferred to Division A-3.

The number constructed follows:

8-inch concrete rings made.....	540
24-inch covers made.....	66
Covers filled.....	63
Covers roughed.....	40

The work accomplished by Division A-7 under Mr. Grant's supervision is as follows:

Work on the pumping station at Reno was continued from the previous year. The roof was put on, the walls were plastered, cement floors and walks laid, a retaining wall was built in the rear, the slopes back of the retaining wall were graded, a sewerage system was completed, the cast-iron thimbles for suction and discharge water pipes were altered, an exhaust in the gasoline pit was built, the walk and roadway were graded, and a meter vault and valve casings were constructed. The galvanized gutter on the lodge was repaired and a fence aligned around the lodge. A pebble-dashed outhouse was erected in the rear of the lot occupied by the lodge.

Alterations were made in openings to the valve vault on Second Street near Bryant Street NW., the sidewalks in front of the District pumping station were repaired, and the soak tub for horses in the wagon yard was changed.

At the Georgetown University a brick vault for the water meter was constructed, and the valve vault on R Street NW., between Seventeenth and Eighteenth Streets, was repaired.

It was at this time that Mr. Grant resigned, and the work of the division was suspended about two weeks. Then work was resumed at Reno Reservoir, preparing for the erection of the garage and lodge. A force of men was put to work excavating for the foundation and erecting the necessary sheds to be used in the work.

A brick foundation was constructed for the garage, at the completion of which the work of this division, as well as the work at Reno, was temporarily suspended for the

period for two months. When work was resumed, all of the construction work passed from the hands of the water department to the hands of contractors.

At an early stage in this work four pieces of granite block were rejected because of extreme lightness of color and uneven thickness. A hatchway was constructed into the cellar, and limestone sills and window frames were set in place. The slate roof of the garage was completed on March 3, 1911, and on April 22, 24 per cent of the total contract work was completed.

Due to defects in the work, the framing on the west side of the structure was condemned, and later was torn down and rebuilt. A 4-inch soil stack was erected and gas pipes installed. A subfloor was built in the garage, the completion of which on May 6, 1911, marked the completion of 35 per cent of the contract work.

About May 12 carpenter work on the exterior, east side of the lodge (second floor), was suspended because of a discrepancy which developed in the dimensions. As soon as suitable means to overcome this difficulty were found, the work was resumed. The straining of the half-timber work and building brick were taken up next, followed by the installation of electric wires and current in the building.

On May 27 one-half of the total contract work had been completed. All interior plastering was completed, together with a cement floor, by June 20, 1911. A sink, bathtub, and closet were installed, with hot and cold water running from the cellar to the bathroom. This terminated the work for the fiscal year, at which time 85 per cent of the contract work on the garage and lodge had been finished.

In the course of the year covers were reset in the valve vaults located at Twenty-second and P Streets NW., and at Eighth Street and Pennsylvania Avenue NW., and a concrete floor was laid in the automobile garage at the District pumping station.

SUBDIVISION A-9.—Miscellaneous drafting.

This subdivision is in charge of Chief Draftsman F. W. Albert. The following is from his report:

Drawings and tracings made.....	996
Projects made.....	234
Cards forwarded to the assessor.....	564
Communications written.....	481
Foreman's plats recorded.....	651
Files forwarded to the assessor.....	183
Locations recorded, no plat necessary.....	136

The above statement shows an increase of 15.9 per cent in the number of drawings and tracings made this year over that of fiscal year ending June 30, 1910. The year just closed is the second one in which foreman's plats, and locations where no plats were necessary were recorded by Division A-9, and shows a decided increase over the figures of last year. The increase in number of foreman's plats recorded is 24.9 per cent; that of locations recorded, no plat necessary, is 126 per cent.

In more detail the work undertaken and disposed of by this division is as follows:

Drawings and tracings are made of all water-main maps, and of mechanical apparatus and their appurtenances, which are used in the office and shops, in the field, or at the pumping station, reservoirs, or lodges. These are all indexed and kept on file in the office for reference.

Among the more important drawings made by this division are the following:

Hanger for 30-inch water main on Pennsylvania Avenue Bridge SE.

Proposed arrangement of 30-inch water main on Pennsylvania Avenue Bridge SE.

Cantilever for 24-inch main on Pennsylvania Avenue Bridge over Philadelphia, Baltimore & Washington Railroad tracks.

Hangers and pipe for proposed 12-inch and 16-inch water mains on Calvert Street Bridge and Klinge Road Bridge.

Arrangement of meters for St. Elizabeth Insane Asylum.

Posting board for map case in room 310½, District Building.

Ocoquan, Va.: Plan of foundations for pipe connections to pumps and boilers; plan of foundations for pipe connections for water tanks and filters; plan for tubular boilers.

Method of construction of valve manholes (for superintendent, water department of Detroit, Mich.)

A very important feature of the division's work is the transcription of the engineers' notes on field jobs upon cards, termed "foreman's plats." They are designed to illustrate exactly the work as completed in the field. Besides the mains, these plats show all connections, services, and valves; the addition of special parts or fixtures which are installed as new work, moved, lowered, or changed in any form, and as reported by

any of the several field parties of the department. These plats are afterwards recorded upon all the maps in the department.

Under the head "Locations recorded, no plats necessary" is included all information concerning existing water mains and which is brought in through any one of several different channels, such as the leak gangs, water registrar's office, pitometer division, etc. This information is made a matter of record, posted on the water-main maps and tracings, and filed away with the other field notes and records.

All private service connections and meter installations 3 inches and over in diameter are drawn up in pencil upon cards printed for that purpose and forwarded to the water registrar immediately upon completion of the foreman's plat, showing each particular installation, for his information and action in order that proper meter accounts, charges, etc., may be made.

On June 16, 1911, the 400-foot scale wall map of the city and part of the county, which has been posted to date and in constant use since 1900, was superseded by the new large six-section 300-foot scale wall map of the entire District and was sent to the pumping station to be hung in the museum. Besides showing in larger scale all that the old 400-foot scale map included, mains, fire hydrants, and water-service areas, the new maps give the size of the various mains and connections, and all controlling water valves in the system. Through its larger scope and scale, ready accessibility, and general convenience, the new map is certain to more than pay the department for all the time and money spent in its construction.

The six sections of the 300-foot scale maps were completed January 28, 1911. Before this, about August 25, 1910, the map case, under construction at the department shops for this series of maps, was installed in the office and the maps hung. The work of posting the maps daily with all new water mains, fire hydrants and valves has been performed as part of the work of the division. This posting includes also the new streets and avenues, as dedicated, formed in the new subdivisions, or opened by condemnation.

Information has been obtained from the several divisions and subdivisions of both the distribution and revenue branches of the department each month, and from this the organization chart has been corrected, if necessary, and otherwise kept posted to date. New prints of the chart have been made and posted in various places.

Pressures have been taken bimonthly on 100 fire hydrants in different sections of the District by field parties assigned to this work. Records of these pressures are kept in special books furnished each party. From these books these pressures are posted on special cards and in a special book, after which the hydraulic heads are computed and form part of a special map drawn up at that time. In addition to these hydraulic heads this map shows the water service areas and trunk mains. The department in this way possesses a very careful and accurate means by which to watch the pressure and supply in all parts of the District.

During the year a change was made in the time for taking the pressures on the 100 fire hydrants. The uniformity of the results obtained seemed to warrant a reduction and consequently these pressures are taken only bimonthly. This change took place beginning August 1, 1910. As can readily be seen, this reduction practically halves the work of miscellaneous drafting upon this item.

The work of drawing the new 100-foot scale maps of the northwest county has been continued at various times during the year, and at this time a number have been completed. Besides this work, the other 50-foot scale water-main maps and tracings have all been corrected and checked. The 50-foot, 100-foot, 300-foot, and 400-foot scale maps in both our own office and those in the office of the water registrar have been kept posted to date. These maps show all the water mains, fire hydrants, horse fountains, public hydrants, valves, etc., laid by the water department. As new work is completed in the field the maps are immediately posted to show that work.

Projects for the proposed extension of water mains are made from the records in the several departments, and show adjacent property abutting proposed water mains, water and gas mains, sewers, electric conduits, curbs, pavements, etc. They are made for all water-main extensions applied for, or upon recommendation by the health officer, chief of the fire department, engineer of highways, and other similar officials, that such extensions be made, and for all special extensions deemed advisable by this department, and tending to the betterment of the service.

All projects are made by this division. The work upon them is continuous, and practically requires the undivided attention of one assistant draftsman.

In pursuance with the commissioners' order of March 8, 1908, the work was continued of sending cards to the assessor showing the location and giving a brief description of all work of laying water mains in the District ordered by the commissioners. A copy of the morning report, made out daily by the foreman of the department, is furnished this division, and from this, new jobs are noted, cards constructed, and immediately forwarded to the assessor.

Reports upon projects and files passing through this office, when pertaining to water-main extensions are placed under the head of communications written. Along with these are reports upon applications for estimates for the installation of special private service connections, changes in existing mains, and work of a similar nature; writing of weekly reports, and post-card followers for all information concerning the location of mains and fire-hydrant pressures given out over the telephone.

The making of estimates in general was practically discontinued during the latter part of the past fiscal year. At the instigation of the Master Plumbers Association the department issued a schedule showing the prices for making 3-inch, 4-inch, and 6-inch connections into private buildings. From this schedule anyone is enabled to figure the cost for any particular connection without reference to the department, except to make the deposit. The schedule was compiled by this division. This new system lessens the clerical work of the division and of the office by reducing the number of estimates to be made and letters written.

The log, begun in April, 1908, and designed to illustrate graphically, through its several elements, the results attained at the pumping station, has been kept posted by daily entries. A daily average for each month has been calculated, after which a daily average for the year was computed. By including the averages of previous years, comparisons can be made and differences readily discerned.

On the 6th day of every month this division has ascertained the subdivision of all parcel property of the District. This is done in the hope that no land which can be assessed for water mains already existing may be allowed to escape taxation.

The work of checking the daily reports of leak gangs with the water-main maps has been continued through the year. This work has resulted in obtaining the locations and sizes of many mains of which the department was either uncertain or totally ignorant. This work is purely routine in character, but nevertheless has gradually tended toward the perfection of our water-main map records.

Closely allied with the checking of daily leak gang reports is the work of posting the new water-main taps. These records are obtained from cards turned in at the water registrar's office by the tapper after the water main has been tapped for new house connections or services. The cards show the location and size of all the mains tapped, together with other information, much of which is of the same value as that obtained from the leak-gang reports.

The work of copying upon cloth the old water-main records, compiled in map form about 15 years ago, was continued throughout the year, as the rush of other work would permit. Such records as were transferred were checked and rechecked in order to determine conclusively that all information on the old records had been transcribed to the new before the old records were destroyed.

Passing work to be done by the surface division is one of the duties of the division, from which no material benefit is derived. Schedules of jobs and locations of work to be done by the surface division are sent to the water department. These are forwarded to this division for reference. Those jobs where water-main work is necessary or in project are held, while the remainder are passed and returned to the surface division for execution. Upon the conclusion of the water-main work, releases are sent to the surface division, and, so far as this department is concerned, the work of that division proceeds. The object of this system is to make the cutting and replacing of new pavements, for underground work, unnecessary immediately after such work has been completed.

One of the chief duties of part of this division is to furnish all officials, or private individuals, requesting the same in person, with information upon many phases of the department's work. The queries often necessitate lengthy research among the records, and cover many details of the work both past and present, in and out of the office. This work consumes much time, since requests for information are numerous, and consequently interferes with the performance of other duties.

The position of official photographer was abolished in August, 1910, thereby causing the discontinuance of the work of posting the photographic albums.

The work of posting, daily, the two work-in-progress maps has been continued throughout the past fiscal year. These maps show, by means of pins with colored heads, paper flags, and small squares of cardboard, the location of a job, the foreman in charge, and illustrate in a similar manner what work is ordered and what work is merely applied for. The information for these maps is obtained from the foreman's morning report of the work in progress and from records kept by the miscellaneous clerical division.

A system of keeping a record of time consumed on all jobs worked upon by the division was started in the middle part of April, 1911. The method of operation is as follows:

Daily reports are made by each man in the division and show in detail a list of the jobs worked on, with the respective time spent on each. These reports are forwarded

to one of the division, who records the job, with the time, on a sheet made to record, for permanent reference, a week's work. At the end of each week the sheet is totaled, and the whole time consumed upon a job for the work is computed. By picking up accumulated time on jobs which are continued from one week to another, the total on these may be ascertained. In this way, by having the total time on a job, the cost of miscellaneous drafting upon any job on record may readily be found.

Another means for increasing the efficiency of the office was begun in April, 1911. From time to time numerous questions have come to the division to be answered. These questions concerned nearly every phase of the department's work, the distribution system, the revenue branch, water mains, etc. It was thought expedient to compile these questions with their answers, together with much other information, into a pamphlet. It is hoped that the information contained therein will be so complete and concise that one of these pamphlets forwarded to persons making inquiries will be quite sufficient to supply them with all the information desired, and without further explanation. This will obviously reduce the number of personal answers, and allow the time formerly spent in that way to be devoted to other phases of the work done under miscellaneous drafting. Owing to the stress of other work it was not practicable to complete this pamphlet before the end of this fiscal year.

In connection with the estimates for the future work of the department, compiled in the latter part of the year, several descriptive maps and supplementary lists were made by this division to show the proposed extension of trunk water mains in all sections of the District. One of the maps shows the trunk mains, in colors assigned to the several water services, and in use at the close of the fiscal year 1910-11. Another illustrates the proposed extensions of those trunk mains, mostly in the outlying sections of the District, with a few mains in the business section. The lists go into detail, giving the length required and the estimated cost of each extension. The same data are given for proposed replacement of mains of insufficient size, and for mains which were installed under the old board of public works, prior to the establishment of the present District government.

There were 36 sets of blue prints of the 300-foot scale maps made and distributed by this division during the past year. Two of these were sent to the filtration plant, the others were distributed among the foremen, leak gangs, and other parties in the department, and needing them in their work. The value of these sets has been much appreciated by those having them. They enable the foreman in charge of construction work, the leak gangs, and all others holding these sets of blue prints, to effect cut-offs and the segregation of the distribution system with little or no difficulty, waste of time, or of energy.

Besides the work referred to above, there is much more work of a more general character, which should be mentioned in this report. This includes miscellaneous lettering, indexing records and maps, changing and correcting drawings and blue prints, indexing and correcting mechanical drawings, figuring and checking the weight of wrought-iron pipe and special castings, changing names on various books and maps in the department to conform to the new street nomenclature, keeping posted to date the indexes of wells, horse fountains, public hydrants, map of field work, etc.

At the present time the force employed to do miscellaneous drafting includes three draftsmen, one acting as chief draftsman, and five skilled laborers, who work as assistant draftsmen. The work of these men is, in the main, very satisfactory.

SUBDIVISION A 10.—*Telephone switchboard.*

A brief summary of the chief items of work done during the year follows: Recorded, 1,725 leaks; 1,111 fire hydrants in service; 1,015 fire hydrants out of service; 3,674 hauling orders; 2,555 reservoir elevations; 739 fire alarms; 5,440 leakmen's reports; 4,708 cut-offs by the water registrar; 63 cut-offs by the pitometer division; 523 locations of new jobs; 33 water complaints; 1,200 weights and miles traveled by auto-trucks; 95,028 telephone connections. Eighteen hundred and seventy-six work orders were issued for repairs to street hydrants, fountains, etc. The telephone switchboard is connected by means of 4 trunk lines with the system of the Chesapeake & Potomac Telephone Co. by 1 line with fire-alarm headquarters, 1 with police headquarters, and 27 lines with the various divisions and branches of the department, reservoirs, etc.

Mr. H. C. Fowler, chief operator, is in charge of the work.

DIVISION B.—*Stables and transportation.*

This division, under Mr. G. A. von Dachenhausen, is charged with the care and maintenance of the water department stables and with all hauling and miscellaneous transportation, shoeing of horses, etc.

Following is a summary of the principal work accomplished:

Men employed daily in connection with the stables and transportation: Foreman, 1; blacksmith, 1; blacksmith's helper, 1; drivers, 31.

Maintenance of roads furnished 3 laborers and watering cart.

The following have been furnished with transportation:

Four to 11 foremen with teams to haul material and move dirt; 2 four-horse trucks and 2 to 7 hired wagons to haul pipe and fittings; engineer division, 2 single teams for 3 months; foreman, 1 single team; timekeeper, 1 single team; pitometer division, 5 single teams; water registrar, 1 single team; valve division, 3 single teams and 1 double team; fire hydrant division, 2 single teams and 2 double teams for nine months; paver, 1 cart; miscellaneous hauling, furnished 2 single teams.

In addition to routine work the following was hauled during the year:

30-inch steel flange pipe.....	tons..	69
24-inch steel flange pipe.....	do....	14
16-inch steel flange pipe.....	do....	41
24-inch C. I. flange pipe.....	do....	2
16-inch C. I. flange pipe.....	do....	1
12-inch C. I. flange pipe.....	do....	22
36-inch C. I. pipe.....	do....	75
30-inch C. I. pipe.....	do....	685
20-inch C. I. pipe.....	do....	2,311
16-inch C. I. pipe.....	do....	11
12-inch C. I. pipe.....	do....	2,602
8-inch C. I. pipe.....	do....	4,367
6-inch C. I. pipe.....	do....	377
4-inch C. I. pipe.....	do....	111
3-inch C. I. pipe.....	do....	31
24-inch T. C. pipe.....	lengths..	32
Valves.....	tons..	253
C. I. fittings.....	do....	136
Pig lead.....	do....	174
Water meters.....	do....	28
Fire hydrants.....	do....	68
Machinery.....	do....	35
Iron castings.....	do....	2
Freight.....	do....	68
Paving blocks.....	do....	9
New brick.....	number..	16,050
Old brick.....	do....	7,000
Granite blocks.....	do....	400
Sand.....	cubic yards..	301½
Gravel.....	do....	237
Soil.....	do....	37
Portland cement.....	barrels..	615
General blacksmithing, wheelwrighting, etc.; sets horseshoes put on		858

Statement of cost of hauling pipe and fittings by the water department, District of Columbia, and cost of same work had contractor done hauling, and saving over contract price.

	Water department.	Cost by contract.	Saving.
Pipe for—			
July.....	\$288.25	\$742.95	\$454.70
August.....	241.98	567.25	325.27
September.....	885.64	2,507.15	1,621.51
October.....	694.23	1,829.30	1,135.07
November.....	579.50	2,029.50	1,450.00
December.....	664.54	1,961.40	1,296.86
January.....	611.50	1,630.00	1,018.50
February.....	441.53	1,145.55	704.02
March.....	589.05	1,970.40	1,381.35
April.....	509.48	1,569.45	1,059.97
May.....	659.25	1,562.70	903.45
June.....	928.38	2,616.65	1,688.27
Fittings, for the year	7,093.33	20,132.30	13,038.97
	580.86	1,204.70	623.84
Total.....	7,674.19	21,337.00	13,662.81

NOTE.—Contract price taken from 1909-10 contract.

DIVISION C.—Inspection of machinery, pipe, specials, etc., at place of manufacture.

During the year three inspectors were employed inspecting cast-iron pipe and special castings made for this department by the Standard Cast Iron Pipe & Foundry Co., Bristol, Pa.; U. S. Cast Iron Pipe & Foundry Co., Scottdale, Pa.; Lynchburg Foundry Co., Lynchburg, Va., and Glamorgan Pipe & Foundry Co., Lynchburg, Va.: 6,461 tons of pipe and 230 tons of special castings were inspected.

DIVISION D.—Revenue and inspection.

For a statement of the work of this division attention is invited to the report of the water registrar, Mr. G. W. Wallace, appended hereto.

DIVISION E.—Miscellaneous clerical.

This division is charged with all work relating to records of contract material delivered, preparation of vouchers for contract and open-market purchases, transfer vouchers for work done by the department on deposit of cost, or for other departments on account; with transmission of all papers to their proper destinations; with keeping of all accounts relating to the employment of labor, expenditure of material, job costs, etc., and with making of requisitions for material as called for by other divisions, and the handling of all miscellaneous correspondence.

During the year 3,100 vouchers and 3,187 "files" were received and forwarded; 1,238 requisitions for material made; 386 transfer vouchers prepared; 1,319 letters and 45 postal cards mailed; 1,079 card records made; 1,215 work orders transmitted; 1,073 official letters forwarded; miscellaneous papers handled, 25,679; letters received and filed, 767; 978 pay rolls prepared, and 17,190 material slips checked, entered, and filed.

Mr. W. C. Small, clerk, has charge of this work.

DIVISION F.—Pitometer surveys for the detection of waste.

The work of this division is under the direction of Mr. Paul Lanham, from whose report the following is taken:

Extensive routine surveys of the water consumption of the first and second high services, and a number of district measurements, special and miscellaneous investigations at various places were made during the fiscal year ended June 30, 1911. The results of this work will be apparent from the tables submitted as a part of this report.

As was expected, the conditions in the two services mentioned were the same as found on the previous surveys. The vast number of old pipes in the first high service make it a constant source of trouble and, while leaks are continually being found and remedied, the effect is frequently to cause other pipes to give way. It is only by keeping a number of men employed in this service throughout the entire year that we may hope to reduce the consumption materially. These statements apply also to the gravity service. With the present force of inspectors, we have succeeded in holding three districts of the gravity service practically the same as in 1909-10, when their consumption had been greatly reduced from the figures of the previous year, and in reducing the daily rate of consumption in the first high service by three-quarters of a million gallons. These two services have required our constant attention for the past three years, and in that period the consumption in the remaining services has increased to such an extent that it is imperative that an examination of the conditions therein should be made. The second high service particularly is in extremely bad shape, showing a high percentage of night rate, in spite of the fact that it is almost entirely residential and all its services are metered.

Several attempts have been made by this division to conduct a thorough survey throughout this entire section, but for various reasons, such as the danger of damaging the meters in freezing weather and lack of proper circulation, they have been incomplete.

The entire pitometer force is at present working in the second high service, but it will take practically all summer to complete the work, and, unless attention is given to the gravity and first high services, the increased consumption therein may overbalance any saving we might make in the higher services. The proper course would be to employ a sufficient number of field parties to maintain a constant watch on all services until such time as they are felt to be under thorough control. The continual weeding out of old pipes and defective controlling devices, together with the repair of faulty calked joints, and the removal of the primary causes of the leaks wherever

possible, will, within a few years, bring the city per capita consumption to a satisfactory figure. From that time a comparatively small force should be able to handle the situation perfectly, especially in view of the fact that the records now being inaugurated will be complete in all details, giving valuable assistance in the survey work.

Although the mean daily rate of consumption for the entire city has increased by 1,126,000 gallons, it is extremely gratifying to be able to report that there has been no increase in those sections of the gravity service which were surveyed in 1909-10 and that there has been a decrease of 750,000 gallons daily in the first high service, where our surveys were conducted during the year just closed. These figures, to my mind, present the strongest arguments for an increase in the number of pitometer parties, the additional men to be employed only for such time as their services give profitable results.

District measurements were made in 15 permanent districts constituting the northwest, southwest, and southeast sections of the gravity service, and the entire first and second high services. With the exception of those in the gravity service, these measurements were the first to be made under the new system in the service mentioned; therefore, no comparisons can yet be made.

In the gravity service, however, we have been able to make a comparison of the consumption of three permanent districts before and after a routine pitometer survey, showing a net saving in the mean daily consumption of 660,000 gallons, notwithstanding the fact that the consumption in the entire gravity service has increased during the past year by 1,145,000 gallons per day. In each of the three districts, the second measurement showed a substantial decrease in the percentage of night rate. (The details of this will be seen in Statement No. 1.)

Only a few special investigations were made during the year, the most important being an analysis of the water consumption at the Government Printing Office. An enormous quantity of water is being used at this plant in its jet condensers, which can not be saved with the present equipment, but the total could be materially reduced by careful regulation of controlling valves by the engineer. It was found and continues to be the practice to turn sufficient water into the condensers to take care of the maximum load, and as this is maintained only for short periods each day considerable water is unnecessarily used. In addition to this possible saving a further saving could be made by proper attention to drain valves on the condenser stand-pipes, which are carelessly left open while the latter are in operation, and the use of the condenser exhaust water as a cooling medium on the air compressors in place of direct city pressure. A number of small leaks, totaling about 11,200 gallons per day, through defective valve disks, were found and repaired as a result of this investigation.

Tests were made to determine the static pressure, consumption, and height of crest of water at new fountains in front of the Union Station, for the information of Burnham & Co., architects.

Records were taken at the Washington Navy Yard to determine whether there had been any increase in the consumption. None was found, the computations showing the use of water to be practically the same as at the completion of our survey of 1909, when a reduction of 2,000,000 gallons daily was effected.

Measurements were made at the Government Printing Office, Municipal Building, and navy yard to determine the maximum and minimum rates of flow. This information was secured for Mr. Hardy, of the filtration plant, and was needed by him to install the proper meter equipment at these buildings.

Miscellaneous night tests were made in about 125 squares where leakage was suspected. A table showing the results of this work is included among the statements herewith submitted.

The routine survey work was carried on in the first and second high services under the same system as that of last year, the territory being divided into large sections, which after the first measurement became permanent districts for our purposes. Districts G, I, K, L, M, N, O, P, and Q were surveyed, the work in several not being quite completed at the end of the year. Nevertheless complete figures are given in this report, as the work was finished previous to this date.

In district G, embracing the entire northeast and southeast sections of the first high service, the mean daily consumption from August 6 to 12, inclusive, was 4,272,000 gallons, with a minimum night rate of 3,216,000, or 75 per cent of the mean daily rate. The per capita consumption was 143 gallons daily, computed from a resident population of 29,850. In this district there was also a floating population, mostly metered, of 3,481. The total number of buildings was 6,856, of which 231 were metered, including 6 Federal and 13 municipal buildings, which get free water. The unmetered buildings include three Federal and two municipal institutions receiving free water. Night tests within the district resulted in the detection of flows totaling 2,850,500 gallons per 24 hours, or 89 per cent of the night rate shown on the records. Of this

amount 949,925 gallons per day were due to leaking and running fixtures inside of the buildings, 332,690 gallons of this being within metered premises; 1,089,604 gallons to broken service; 269,343 gallons to defective calked joints; 20,339 gallons to leaking fire hydrants; 2,000 gallons to leaking public hydrants; 120,614 gallons to defective valves, including one blow-off partly open; 21,818 gallons to flow through horse fountains; 12,471 gallons to sewer flush basins; and 310,114 gallons to Federal buildings and fountains. A balance of only 54,255 gallons per day, or 1.9 per cent, was left unaccounted for.

In district I, embracing the entire first high-service territory lying west of Seventeenth Street NW., the mean daily consumption from November 19 to 25, 1910, inclusive, was 3,548,600 gallons, with a minimum night rate of 3,240,000, or 91 per cent of the mean daily rate. The per capita consumption was 187 gallons daily, computed from a resident population of 18,904. In this district there was also a floating population, about two-thirds metered, of 7,124. The total number of buildings was 3,921, of which 1,454 were metered, including seven municipal buildings, which get free water. The unmetered buildings include one Federal and two municipal institutions receiving free water. Night tests within the district resulted in the detection of flows totaling 1,408,435 gallons per 24 hours. Of this amount, 425,647 gallons per day were due to leaking and running fixtures inside of the buildings, 92,845 gallons of this being within metered premises; 482,608 gallons, to broken services; 347,076 gallons, to defective calked joints; 6,012 gallons, to defective valves; 11,305 gallons, to flow through horse fountains; 12,081 gallons, to sewer flush basins; and 14,320 gallons, to Federal buildings and fountains. Approximately 200,800 gallons of the night flows detected, or 14 per cent, were left unaccounted for in this district.

In district K, embracing the entire portion of the first high service lying between Eleventh and Seventeenth Streets NW., the mean daily consumption from November 19 to 25, 1910, inclusive, was 3,649,705 gallons, with a minimum rate of 2,592,000, or 71 per cent of the mean daily rate. The per capita consumption was 158 gallons daily, computed from a resident population of 23,051. In this district there was also a floating population, about three-fifths metered, of 5,894. The total number of buildings was 4,382, of which 458 were metered, including 4 municipal buildings, which get free water. The unmetered buildings include 3 municipal institutions receiving free water. Night tests within the district resulted in the detection of flows totaling 2,825,320 gallons per 24 hours. Of this amount, 1,153,748 gallons per day were due to leaking and running fixtures inside of the buildings, 299,503 gallons of this being within metered premises; 682,623 gallons, to broken services; 728,847 gallons, to defective calked joints; 7,600 gallons, to defective valves; 18,000 gallons, to flow through horse fountains; and 5,040 gallons, to sewer flush basins. Approximately 229,902 gallons of the night flow detected, or 8 per cent, were left unaccounted for.

In district L, embracing that portion of the first high-service territory east of Eleventh Street NW., lying between the gravity and the second high service, the mean daily consumption from December 13 to 19, inclusive, was 8,104,893 gallons, with a minimum rate of 7,168,000, or 88 per cent of the mean daily rate. The per capita consumption was 225 gallons daily, computed from a resident population of 35,881. In this district there was also a floating population, about three-fourths metered, of 12,473. The total number of buildings was 8,018, of which 3,163 were metered, including 1 Federal and 20 municipal buildings, which get free water. The unmetered buildings include 5 municipal institutions receiving free water. Night tests within the district resulted in the detection of flows totaling 3,103,497 gallons per 24 hours. Of this amount 1,891,799 gallons per day were due to leaking and running fixtures inside of the buildings, 1,108,942 gallons of this being within metered premises; 635,960 gallons, to broken services; 98,000 gallons, to abandoned taps; 329,293 gallons, to defective calked joints; 10,000 gallons, to leaking fire hydrants; 18,461 gallons, to defective valves; 20,044 gallons, to flow through horse fountains; 23,758 gallons, to sewer flush basins. Approximately 94,642 gallons per day, or 3.5 per cent, were left unaccounted for in this district.

In district M, embracing the entire portion of the northwest second high service lying west of Sixteenth Street south of Irving Street NW., the mean daily consumption from April 14 to 21, inclusive, was 1,755,560 gallons, with a minimum night rate of 1,236,000, or 70 per cent of the mean daily rate. The per capita consumption was 141 gallons daily, computed from a resident population of 12,467. In this district there was also a floating population, mostly metered, of 5,287. The total number of buildings was 1,887, of which 1,615 were metered, including one Federal and six municipal buildings, which get free water. The unmetered buildings include three municipal institutions receiving free water. Night tests within the district resulted in the detection of flows totaling 555,517 gallons per 24 hours, or only 45 per cent of the night rate shown on the records. Of this amount 198,085 gallons per day were due

to leaking and running fixtures inside of the buildings, 168,612 gallons of this being within metered premises; 58,857 gallons, to broken service; 9,919 gallons, to leaking fire hydrants; 36,700 gallons, to defective valves, including one blow-off partly open; 7,640 gallons, to flow through horse fountains; 4,310 gallons, to sewer flush basins; and 111,851 gallons, to Federal buildings and fountains. Approximately 128,155, or 23 per cent, of the night flows in this district were left unaccounted for. This discrepancy may be due to leakage from several trunk mains which were tested.

The velocities through the feed mains, however, were so small at the time of measurement as to be below the limit of accuracy of the meters, and the mean daily and night rate figures above may be inaccurate from that cause. They can not be verified until more sensitive devices are put into use, which, I believe, will be during the next year.

In district N, embracing the second high-service territory lying between Fourteenth Street and the Zoological Park, Randolph and Irving Streets NW., the mean daily consumption from June 6 to 12, 1911, inclusive, was 568,698 gallons, with a minimum night rate of 275,939, or 49 per cent of the mean daily rate. The per capita consumption was 110 gallons daily, computed from a resident population of 5,140. In this district there was also a floating population, mostly metered, of 965. The total number of buildings was 1,036, of which 889 were metered, including two municipal buildings, which get free water. The unmetered buildings include one Federal institution receiving free water. Night tests within the district resulted in the detection of flows totaling 50,706 gallons per 24 hours, or only 8.9 per cent of the night rate shown on the records. Of this amount 6,025 gallons per day were due to leaking and running fixtures inside of the buildings, all of this being within metered premises; 33,500 gallons, to broken services; 4,165 gallons, to flow through horse fountains; and 4,500 gallons, to sewer flush basins. Approximately 2,316 gallons, or 4.5 per cent of the night flows detected, were left unaccounted for in this district. The same conditions of velocity, however, prevailed in this district as in M; therefore the mean daily and minimum rates may be subject to correction when more accurate measuring devices are obtained for low velocities.

In district O, embracing the second high-service territory lying between First Street NW. and the eastern boundaries of districts M and N, the mean daily consumption from June 14 to 20, 1911, inclusive, was 939,453 gallons, with a minimum night rate of 878,222 gallons, or 93 per cent of the mean daily rate. The per capita consumption was 48 gallons daily, computed from a resident population of 19,550. In this district there was also a floating population, mostly metered, of 4,508. The total number of buildings was 4,073, of which 3,913 were metered, including six municipal buildings, which get free water. The unmetered buildings include four municipal institutions receiving free water. Night tests within the district resulted in the detection of flows totaling 583,675 gallons per 24 hours. Of this amount 244,263 gallons per day were due to leaking and running fixtures inside of the buildings, all of this being within metered premises; 173,320 gallons, to broken services; 13,315 gallons, to defective calked joints; 7,387 gallons, to leaking fire hydrants; and 17,135 gallons, to flow through horse fountains. Included in the above, there was a night flow into the district pumping station at the rate of 65,000 gallons per day. There was left unaccounted for in this district 53,257 gallons, or 9 per cent of the total night flow detected by the subdivision tests.

In district P, embracing the section of the northeast second high service lying between First Street west and Fourteenth Street east, the mean daily consumption from June 16 to 23, 1911, inclusive, was 388,210 gallons, with a minimum night rate of 289,544, or 75 per cent of the mean daily rate. The per capita consumption was 119 gallons daily, computed from a resident population of 3,265. In this district there was also a floating population, mostly metered, of 367. The total number of buildings was 747, of which 707 were metered, including one Federal and three municipal buildings, which get free water. Night tests within the district resulted in the detection of flows totaling 25,180 gallons per 24 hours. Of this amount, 3,160 gallons per day were due to leaking and running fixtures inside of the buildings, 2,660 gallons of this being within metered premises; 4,680 gallons, to broken services; 100 gallons, to defective calked joints; and 500 gallons, to defective valves. Sixteen thousand seven hundred and forty gallons per day, or 66 per cent of the night rate detected by the subdivision tests, were left unaccounted for in this district.

Because of the low velocity of flow through the 12-inch main at Twenty-eighth Street and Bladensburg Road NE., it was necessary to measure jointly the consumption in districts Q and R, embracing the portion of the second high-service territory lying east of Fourteenth Street NE. The total mean daily consumption from June 17 to 24, 1911, inclusive, was 632,671 gallons, with a minimum night rate of 427,575, or 68 per cent of the mean daily rate. The per capita consumption was 266 gallons daily, computed from a resident population of 2,376. In these districts there was also a

floating population, mostly metered, of 47. The total number of buildings was 553, of which 416 were metered. The unmetered buildings include two municipal institutions receiving free water. Night tests within the districts resulted in the detection of flows totaling 200,297 gallons per 24 hours. Of this amount 155,475 gallons per day were due to leaking and running fixtures inside of the buildings, all of this being within metered premises; 11,500 gallons, to broken services; 5,000 gallons, to defective calked joints; 2,000 gallons, to leaking public hydrants; 4,533 gallons, to defective valves, and 3,060 gallons to flow through horse fountains. Twenty-two thousand seven hundred and eighty-nine gallons, or 11 per cent of the night rate detected by the subdivision tests, were left unaccounted for in these districts.

The total underground leakage found and stopped during the year amounted to 6,921,900 gallons per day, over one-half of this being due to defective service pipes. The sources and quantity of leakage chargeable to each were as follows: Joints on mains, 2,562,460 gallons; iron services, 1,508,890 gallons; broken lead services, 1,237,640 gallons; broken wiped joints, 666,730 gallons; blow-off valves partly open, 176,600 gallons; abandoned services and taps leaking, 173,580 gallons; defective couplings on services, 182,900 gallons; leaking valves, 110,900 gallons; defective stopcocks, 43,300 gallons; defective public hydrants, 84,220 gallons; defective valves on fire hydrants, 19,180 gallons; defective street washer, 42,000 gallons; defective goosenecks, meters, plugs, brass thimbles, and unclassified service pipes, 97,600 gallons.

Twenty-one thousand five hundred and forty-seven houses were inspected, leaking fixtures being found in 3,262, or 15 per cent. Fourteen thousand three hundred and ninety-six metered service pipes were inspected, and 21,554 curb cut-off boxes were cleaned to make possible the operation and inspection of stopcocks at night. Two hundred and eighty-eight 48-hour notices were served on premises for underground leaks. Of these premises, it was necessary to cut off only 69 for failure to make repairs.

Twenty-eight permanent connection vaults were installed at new locations, and 4 old connections were removed, leaving a total of 287 vaults in service at the close of the fiscal year. Forty-one permanent connections were repaired, valve casings being installed on 26, in place of the old 8-inch standpipes.

Four 200-foot scale maps of large pitometer districts were completed during the year and the entire sets of 50-foot and 200-foot scale maps of the city were kept posted to date by the draftsman. About three-fifths of the city is now covered by our 200-foot scale maps, and the whole set will be completed during the year.

Photographic work during the year consisted of making 500 8 by 10 prints and plate sinking the same, and making about 50 5 by 7 prints on work orders from the superintendent.

The total expenditures of this division for the year amounted to \$29,264.97, as follows:

Operating:

Per diem pay-roll services.....	\$18,917. 29	
Material issued, including transportation and repair to cuts in improved pavements.....	7,021. 23	\$25,938. 52

New work:

Per diem pay roll.....	1,912. 11	
Material issued and expended.....	1,414. 34	3,326. 45

Total.....		29,262. 97
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SUPPLEMENTS.

No. 1-A, statement of conditions B, C, and E before and after survey.

B, statement of miscellaneous work.

No. 2, statement of district measurements.

No. 3, statement of district surveys.

No. 4, statement of results of surveys.

No. 5, map showing permanent districts.

1-A.—Conditions in districts B, C, and E before and after a routine pitometer survey.

DISTRICT B.

	Before survey, August, 1909.	After survey, June, 1910.
Mean daily consumption.....	3,372,800	¹ 3,195,000
Minimum night rate.....	2,458,800	2,199,600
Ratio of minimum night rate to mean daily supply..... per cent..	73	69

¹ The mean daily supply for June is normally 6.4 per cent lower than for August.

DISTRICT C.

	Before survey, May, 1910.	After survey, March, 1911.
Mean daily consumption.....	3,637,800	¹ 3,687,600
Minimum night rate.....	3,097,800	3,061,800
Ratio of minimum night rate to mean daily supply..... per cent..	85	83

¹ The mean daily supply for March normally is 5.4 per cent lower than for May.

DISTRICT E.

	Before survey, September, 1909.	After survey, July, 1910.
Mean daily consumption.....	7,638,000	¹ 7,663,600
Minimum night rate.....	6,062,400	5,627,800
Ratio of minimum night rate to mean daily supply..... per cent..	79	74

¹ The mean daily supply for June is normally 12.7 per cent higher than for September.

B.—Miscellaneous night tests, 1910-11.

Squares tested.	Flow detected (gallons per day).	Flow due to—	Gallons per day.
135	263,756	Inside fixtures metered.....	165,798
		Inside fixtures unmetered.....	27,545
		Fire hydrants.....	2,500
		Public hydrants.....	5,000
		Horse fountains.....	9,250
		Federal fountains.....	18,500
		Defective valves.....	10,851
		Total.....	249,444
		Unaccounted for.....	14,312

2.—Measurements of permanent districts, fiscal year 1910-11.

Districts.	Date.	Mean daily supply (gallons per day).	Minimum night rate (gallons per day).
A.....	May 13-18, 1911.....	8,369,700	6,458,400
B.....	Feb. 24-Mar. 2, 1911.....	3,001,874	1,974,240
C.....	Mar. 9-15, 1911.....	3,687,635	3,061,800
D.....	Mar. 19-25, 1911.....	4,335,430	3,120,000
E.....	July 8-14, 1910.....	7,663,600	5,627,808
	Mar. 29-Apr. 6, 1911.....	6,379,600	5,155,200
G.....	Aug. 6-12, 1910.....	4,272,000	3,216,000
I.....	Nov. 19-25, 1911.....	3,548,572	3,240,000
K.....	do.....	3,649,705	2,592,000
L.....	Dec. 13-19, 1911.....	8,104,900	7,168,000
M.....	Sept. 16-22, 1911.....	1,603,000	1,170,000
	Apr. 14-21, 1911.....	1,755,600	1,236,000
N.....	June 6-12, 1911.....	568,698	275,939
O.....	June 14-20, 1911.....	939,453	878,222
P.....	June 16-23, 1911.....	388,210	289,544
Q and R.....	June 17-23, 1911.....	632,671	427,575

3.—Routine surveys of permanent pitometer districts.

FISCAL YEAR 1910-11.

	Districts and date of measurement.		
	G.—Aug. 6-12, 1910.	I.—Nov. 19-25, 1910.	K.—Nov. 19-25, 1910.
Mean daily supply.....gallons.....	4,272,000	3,548,572	3,649,705
Minimum night rate.....gallons per day.....	3,216,000	3,240,000	2,592,000
Ratio of minimum night rate to mean daily supply.....per cent.....	75	91	71
Survey:			
Started.....	July 11, 1910	Oct. 6, 1910	Oct. 20, 1910
Finished.....	Oct. 20, 1910	Jan. 12, 1911	Apr. 16, 1911
Population:			
Resident—			
Metered.....	2,339	9,985	5,944
Unmetered.....	27,511	8,919	17,103
Total.....	29,850	18,904	23,047
Floating—			
Metered.....	2,243	4,535	3,270
Unmetered.....	1,238	2,589	2,624
Total.....	3,481	7,124	5,894
Per capita consumption (computed from resident population).....	143	187	158
Buildings:			
Dwellings—			
Metered.....	111	1,293	271
Unmetered.....	6,272	2,223	3,478
Stores—			
Metered.....	26	34	41
Unmetered.....	263	154	271
Hotels and apartments—			
Metered.....	36	68	80
Unmetered.....	15	14	14
Public schools—			
Metered.....	10	7	3
Unmetered.....	2	1	3
Private schools—			
Metered.....	2	9	4
Unmetered.....	1	5	4
Police stations—			
Metered.....	1		
Unmetered.....		1	
Engine houses—			
Metered.....	2		1
Unmetered.....			
Federal buildings—			
Metered.....	6		
Unmetered.....	3	1	

5.—Routine surveys of permanent pitometer districts—Continued.

FISCAL YEAR 1910-11—Continued.

	Districts and date of measurements.		
	G.—Aug. 6-12, 1910.	I.—Nov. 19-25, 1910.	K.—Nov. 19-25, 1910.
Buildings—Continued.			
Stables and garages—			
Metered.....	3	7	17
Unmetered.....	13	9	86
Factories—			
Metered.....	6	3	5
Unmetered.....	1	1	1
Saloons—			
Metered.....	15	11	7
Unmetered.....	2		
Miscellaneous—			
Metered.....	13	22	29
Unmetered.....	53	58	67
Total metered.....	231	1,454	458
Total unmetered.....	6,225	2,467	3,924
Grand total.....	6,456	3,921	4,382
Night flow detected by subdivision..... gallons per day..	2,850,481	1,408,435	2,825,320
Due to inside fixtures—			
Metered.....	332,690	92,845	299,503
Unmetered.....	617,233	322,802	854,245
Due to underground leakage—			
Services.....	1,089,604	482,608	682,623
Joints.....	269,343	374,076	728,407
Fire hydrants.....	20,339	1,500	
Public hydrants.....	2,000		
Defective valves.....	120,614	6,112	7,600
Due to horse fountains.....	21,818	11,305	18,000
Due to flush basins.....	12,471	12,081	5,040
Due to Federal buildings and fountains.....	310,114	14,320	

FISCAL YEAR 1910-11.

	Districts and date of measurement.		
	L.—Dec. 13- 19, 1910.	M.—Apr. 14- 21, 1911.	N.—June 6- 12, 1911.
Mean daily supply..... gallons..	8,104,893	1,755,560	568,698
Minimum night rate..... gallons per day..	7,168,000	1,236,000	275,939
Ratio of minimum night rate to mean daily supply-percent..	88	70	49
Survey:			
Started.....	Jan. 12, 1911	Apr. 17, 1911	Apr. 17, 1911
Finished.....	June 17, 1911	June 20, 1911	July 20, 1911
Population:			
Resident—			
Metered.....	15,173	11,611	4,927
Unmetered.....	20,508	856	213
Total.....	35,681	12,467	5,140
Floating—			
Metered.....	9,537	4,203	941
Unmetered.....	2,936	1,084	24
Total.....	12,473	5,287	965
Per capita consumption (computed from resident population).....	225	141	110
Buildings:			
Dwellings—			
Metered.....	2,947	1,468	837
Unmetered.....	4,242	227	135
Stores—			
Metered.....	85	31	9
Unmetered.....	470	24	6

3.—Routine surveys of permanent pitometer districts—Continued.

FISCAL YEAR 1910-11—Continued.

	Districts and date of measurement.		
	L.—Dec. 13-19, 1910.	M.—Apr. 14-21, 1911.	N.—June 6-12, 1911.
Buildings—Continued			
Hotels and apartments—			
Metered.....	36	85	33
Unmetered.....	11	8	
Public schools—			
Metered.....	16	4	2
Unmetered.....	4	3	
Private schools—			
Metered.....	3	9	1
Unmetered.....	2	2	
Police stations—			
Metered.....	1		
Unmetered.....	1		
Engine houses—			
Metered.....	3	2	
Unmetered.....			
Federal buildings—			
Metered.....	1	1	
Unmetered.....			1
Stables and garages—			
Metered.....	6	3	3
Unmetered.....	51		2
Factories—			
Metered.....	7		
Unmetered.....	3		
Saloons—			
Metered.....	36	1	
Unmetered.....	1		
Miscellaneous—			
Metered.....	22	11	4
Unmetered.....	70	8	1
Total metered.....	3,163	1,615	889
Total unmetered.....	4,855	272	147
Grand total.....	8,018	1,889	1,036
Night flow detected by subdivision..... gallons per day..	3,103,497	555,517	50,706
Due to inside fixtures—			
Metered.....	1,108,942	168,612	6,225
Unmetered.....	782,857	29,473	
Due to underground leakage—			
Services.....	1,733,960	58,857	33,500
Joints.....	329,293		
Fire hydrants.....	10,000	9,919	
Public hydrants.....			
Defective valves.....	18,461	* 36,700	
Due to horse fountains.....	20,044	7,640	4,165
Due to flush basins.....	23,758	4,310	4,500
Due to Federal buildings and fountains.....		111,851	

¹ Abandoned taps, 98,000.

* Open blow-offs, 26,000.

FISCAL YEAR 1910-11.

	Districts and date of measurement.		
	O.—June 14-20, 1911.	P.—June 16-23, 1911.	Q and R.—June 17-24, 1911.
Mean daily supply..... gallons..	939,453	388,210	632,671
Minimum night rate..... gallons per day..	878,222	289,544	427,575
Ratio of minimum night rate to mean daily supply, percent.....	93	75	68
Survey:			
Started.....	May 10, 1911	May 27, 1911	June 12, 1911
Finished.....	July 23, 1911	July 27, 1911	July 29, 1911

3.—Routine surveys of permanent pitometer districts—Continued.

FISCAL YEAR 1910-11—Continued.

	Districts and date of measurement.			
	O.—June 14-20, 1911.	P.—June 16-23, 1911.	Q.	R.
Population:				
Resident—				
Metered.....	19,268	3,243	885	1,389
Unmetered.....	282	22	64	38
Total.....	19,550	3,265	949	1,427
Floating—				
Metered.....	3,923	328	25	6
Unmetered.....	585	39	5	11
Total.....	4,508	367	30	17
Buildings:				
Dwellings—				
Metered.....	3,681	685	193	315
Unmetered.....	111	10	15	17
Stores—				
Metered.....	125	15	2	3
Unmetered.....	12	2		
Hotels and apartments—				
Metered.....	66			
Unmetered.....				
Public schools—				
Metered.....	3	2	1	
Unmetered.....	2			1
Private schools—				
Metered.....	8	1		
Unmetered.....				
Police stations—				
Metered.....	1			
Unmetered.....				
Engine houses—				
Metered.....	2	1		
Unmetered.....	1			1
Federal buildings—				
Metered.....			1	1
Unmetered.....				
Stables and garages—				
Metered.....	2	2		1
Unmetered.....	24		1	
Factories—				
Metered.....	3	2	1	
Unmetered.....				
Saloons—				
Metered.....				
Unmetered.....				
Miscellaneous—				
Metered.....	22	11		2
Unmetered.....	10	15	1	
Total metered.....	3,913	719	195	321
Total unmetered.....	160	38	17	20
Grand total.....	4,073	757	212	341
Night flow detected by subdivision... gallons per day..	583,675	25,180	200,297	
Due to inside fixtures—				
Metered.....	244,263	2,660	155,470	
Unmetered.....		500		
Due to underground leakage—				
Services.....	173,320	4,680	11,500	
Joints.....	13,315	100	5,000	
Fire hydrants.....	7,387			
Public hydrants.....			2,000	
Defective valves.....		500	4,533	
Due to horse fountains.....	17,135		3,060	
Due to flush basins.....				
Due to Federal buildings and fountains.....				
District pumping station.....	65,000			

4.—*Pitometer surveys, results for fiscal year 1910-11.*

	Number.	Waste per day.
		<i>Gallons.</i>
Service pipes inspected (metered services, 14,396).....	35,943	
Houses inspected.....	21,547	
Houses with leaking fixtures.....	3,262	
Abandoned services and taps leaking.....	4	173,583
Iron services broken.....	142	1,508,898
Lead services broken.....	94	1,237,644
Wiped joints broken.....	70	666,730
Couplings on services leaking.....	48	182,900
Curb stop cocks leaking.....	16	43,300
Joints on mains leaking.....	184	2,562,461
Mains broken.....	1	15,900
Valves leaking.....	32	110,900
Defective public hydrants.....	8	84,220
Defective fire hydrants.....	12	19,180
Blow-offs open or partly open.....	3	176,600
Defective street washers.....	10	42,000
Defective goosenecks, meters, plugs, a brass thimble, and miscellaneous services.....		97,600
Waste found and prevented.....		6,921,916
Notices served.....		288
Houses cut off.....		69
Cut-off boxes cleaned.....		21,554

DIVISION G.—*Tests and experiments.*

The work of this division is under the direction of Mr. H. D. Yates, from whose report the following is taken:

This division is charged with testing and correcting the measuring apparatus used by the department; with making calorimetric tests of coal delivered at the pumping station; with making accuracy tests of all water meters to be used in the District of Columbia; with making special tests of boilers and machinery as called for; with purifying the oil removed by the waste-cleaning machine; with figuring the daily pumpage, consumption, station duty, etc., and with keeping necessary records.

A brief summary of the tests made during the year is as follows: Water meters, $\frac{1}{2}$ -inch to 6-inch sizes, tests for accuracy, 5,574; valves, $\frac{1}{2}$ -inch to 30-inch sizes, tests for leaks, 2,031; $\frac{1}{2}$ -inch corporation cocks, tests for leaks, 2,430; $\frac{1}{2}$ -inch curb cocks, tests for leaks, 720; $\frac{1}{2}$ -inch stopcocks, tests for leaks, 126; $\frac{1}{2}$ -inch pressure regulators tested, 84, and pressure gauges tested and corrected, 40. Also made calibrations of thermometers, fuel calorimeter, CO₂ recorder, Venturi meter recorder, etc., and tests of our boiler furnaces with a view of fixing on the most satisfactory method of "firing" for the purpose of smoke prevention.

The tests for accuracy and durability of water meters, begun July 3, 1908, to secure information for the guidance of the department in the selection of meters for local use were discontinued during the first month of the year. The records of these tests, which were kept practically up to date at all times, are rather voluminous, consisting of 115 sheets of typewritten tables and 85 graphical charts, besides numerous notes on repairs. There are at the present time 13 small-sized meters undergoing durability tests, which are being tested by request of the manufacturers.

During the first 10 months of the year 621 gallons of purified oil was removed from the material passed by the waste-cleaning machine and used in oil cups.

The total pumpage for the year was 9,100,594,000 gallons, which is only 25,217,000 gallons more than in 1909-10. The cost of operation, supplies, and repairs, including coal, was \$37,002.83, making the total operative cost of pumping a million gallons of water into the mains, \$4.07. This cost is 43 cents per million gallons more than in 1909-10 and is due to the increased cost of coal, which was 14 cents more per ton, to the increased cost of repairs to machinery and boilers, and to a falling off in the station duty.

The station duty for the year was 91,565,352 foot-pounds per hundred pounds of coal burned. This is 7.04 per cent less than the duty obtained during the preceding year, and represents an annual loss of 287.5 gross tons of coal. The greater portion of this loss occurred in the second half of the year, during which period steam jets have been used in the boiler furnaces during the daytime for the purpose of smoke prevention. The station duty for the first half of the year was 94.9 millions of foot-pounds, and for the second, 88.3.

The accompanying tabular statements show the sizes and makes of all private and municipal water meters tested during the year; the results of calorimetric tests of the coal delivered at the pumping station; the pumping record for the year, and the operative cost of pumping.

The normal force employed consisted of two skilled laborers, one plumber, and one laborer.

Calorimetric tests of George's creek coal delivered during the fiscal year ending June 30, 1911, at the District pumping station, Washington, D. C.

Months.	Dry coal.	
	British thermal units per pound.	Ash.
1910.		
July.....	14,552	7.28
August.....	14,577	7.92
September.....	14,682	8.38
October.....	14,464	8.09
November.....	14,598	7.96
December.....	14,366	8.65
1911.		
January.....	14,352	8.44
February.....	14,326	8.18
March.....	14,537	8.37
April.....	14,633	9.22
May.....	14,462	7.88
June.....	14,390	8.21
Average.....	14,495	8.22

NOTE.—In selecting a sample for test a small quantity of the coal was taken from the front and rear ends of each wagon load as received. These were combined for monthly periods, and the required sample obtained by the process of quartering down. Tests were made with the Carpenter fuel calorimeter.

Tests of private and municipal water meters (excluding meters on endurance test) during the fiscal year ended June 30, 1911.

Meter.	Size.									Total.
	½-inch.	¾-inch.	1-inch.	1½-inch.	2-inch.	3-inch.	4-inch.	6-inch.		
American.....		9		1						10
Crown.....		1	5	3		3	4	7		24
Empire.....		3		3		4	3	2	3	18
Enarc.....			5	6		7	1			19
Eureka.....									1	1
Gem.....						9	2	6		17
Hersey.....		3,711	43	9		12	8	3	3	3,789
Hersey detector.....							3			4
Keystone.....		104	2	2					1	109
King.....		5				1				5
Lambert.....		112	37	34		27		5		227
Nash.....		28	155	127		56	50	12	8	436
Niagara.....		1	8	10	3	9	6			37
Pittsburg disk.....		6	15	11			12			46
Standard.....			9	4		8	2			22
Thomson.....	1		30	49		16	14	3		113
Trident.....		249	17	28		22	3			341
Union.....			6	10		10	3	18	5	34
Worthington.....		102		5		3	7	2		119
Vertical hot-water.....								1		1
Total.....	1	4,331	332	302	3	177	121	54	49	5,372

Cost of operating pumping engines at the District pumping station during the year ending June 30, 1911.

Operating expenses:

Salaries—		
1 chief steam engineer, one-half annual salary.....	\$875. 00	
3 steam engineers.....	3, 300. 00	
3 assistant steam engineers.....	2, 625. 00	
3 firemen.....	2, 625. 00	
4 oilers.....	2, 440. 00	
3 cleaners.....	1, 916. 25	
5 laborers ¹	2, 677. 50	
2 boiler cleaners, 1 steam fitter, and 1 helper ²	918. 00	
		\$17, 376. 75
Coal: 9,145,306 pounds bituminous coal at \$3.43 per ton, in bins...		14, 003. 70
Supplies: Cylinder oil, engine oil, crank case oil, grease, waste, packing, washers, lard oil, and graphite.....		3, 387. 89
Repairs to pumps, engines, boilers, including grates—		
Per diem labor.....	653. 91	
Material expended.....	1, 580. 58	
		2, 234. 49
Total cost of operation.....		37, 002. 83
Total pumpage for the year, without allowance for slip..... gallons..	9, 100, 594, 000	
Greatest amount pumped in one day (May 22)..... do....	30, 495, 700	
Least amount pumped in one day (Apr. 1)..... do....	19, 937, 600	
Average pumped per day..... do....	24, 933, 134	
Average dynamic head against pumps in feet.....	110. 33	
Duty= $\frac{\text{Gallons pumped} \times 8.34 \times 100 \times \text{dynamic head}}{\text{Total fuel consumed}}$	91, 565, 352	
Cost of fuel, pumping 1,000,000 gallons 1 foot high..... cents..	1. 39	
Total operative cost of pumping 1,000,000 gallons 1 foot high... do....	3. 69	
Total operative cost per 1,000 gallons pumped..... do....	0. 407	

NOTE.—The items of supplies and repairs were furnished by the clerical division. The pumpage is figured from plunger displacement, without allowance for slip. The aggregate slip of all pumps during the year, based on pitometer determination, is 3.62 per cent of the total displacement. The average dynamic head is figured from the total work done by pumping engines and generators. The fuel consumed is the total coal burned, excluding the heating system. The cost of heating—366,973 pounds of coal, at \$3.43 per ton—is \$561.93.

DIVISION H.—*Pumping station and shops.*

This division has charge of all pumping incident to the operation of the distribution system, care of pumping stations and machinery, and all miscellaneous repair work needed in the department. It is under the direction of Mr. James T. Fink, chief steam engineer, from whose report the following is taken:

Water pumped, figured from plunger displacement:

First high service.....	gallons..	6, 735, 121, 450
Second high service.....	do....	1, 792, 623, 750
Third high service.....	do....	572, 848, 800
Total.....	do....	9, 100, 594, 000
Coal burned.....	tons..	4, 225
Cylinder oil used.....	gallons..	434
Engine oil used.....	do....	1, 132
Grease used.....	pounds..	432. 75
Waste used.....	do....	956. 5

¹ The 5 laborers are employed as follows: Two cleaning engine-room floor, 2 cleaning windows, galleries, etc., and 1 handling coal.

² These men are not in constant attendance. An allowance of time and a half for one man is made at \$2 per day per year of 306 days.

The regular force employed for the operation of the pumping engines, boilers, cleaning machinery, boilers, etc., is as follows:

Steam engineers.....	3
Assistant steam engineers.....	3
Firemen.....	3
Oilers.....	4
Cleaners.....	4
Laborers.....	5

For the fourth high service, the water is pumped from the reservoir at Fort Reno (which is supplied by the third high-service pumps) to an elevated tank. The new pumping station was completed and put in service for this system early in the past fiscal year, and has been in daily operation since July 16, 1910. The present equipment for the fourth high service is four triplex single-acting plunger pumps, operated by gasoline engines—one 6 horsepower, one 10 horsepower, and two 20 horsepower, respectively. This machinery is operated daily by the watchman in charge of the reservoir, and one assistant on night duty. The water pumped for this system during the year equals 42,990,242 gallons.

Under the head of shopwork are included the following divisions and the number of men ordinarily employed to carry on the work (additional help is employed temporarily as needed):

Machinists.....	7
Blacksmith.....	1
Carpenters.....	4
Painters.....	2
Steam fitter.....	1
Laborers.....	7

The work accomplished during the year is as follows: All necessary repairs for this station and Reno pumping plant, automobiles, etc.; made repair parts for fire plugs, valves, street hydrants, including all tools used on the work of laying water mains and connections, such as picks, chisels, breakers, calking tools, yarning irons, keys, wrenches, pipe bands, arch irons, and miscellaneous tools and appliances as required; erected machinery at Reno pumping station; erected and fitted up building for brass foundry; set up power hammer in blacksmith shop; made experimental recorders for pitometer division; made metal patterns, iron forms for concrete rings, fittings for map case, heating coils for auto sheds; changed side valves in 300 high pressure fire plugs; built derricks; made indicator posts; examined valves for interchangeability; erected cantilevers on Pennsylvania Avenue Bridge; built 84 three and four way valves; cut 100 $\frac{1}{2}$ -inch, 1,700 $\frac{1}{2}$ -inch, 500 1-inch, and 100 $\frac{1}{4}$ -inch pipe nipples; made 61 operating screws for valves; reversed bell and tested 61 fire plugs; cut threads on 133 curb cocks; made 137 screws and 112 waste valves for fire plugs; put handles in 80 dirt rammers; repaired 968 water meters; repaired 2 2-inch, 7 3-inch, 53 4-inch, 28 6-inch, 8 8-inch, 3 12-inch, 1 16-inch two-way gate valves, and 9 three and four way Eddy valves, total 111; sharpened horse clippers, paper cutters, Smith cutters, fitted up casings for fire plugs; repaired drinking fountains; set up meter batteries; and other miscellaneous work too numerous to mention.

In the blacksmith shop the following work has been done: Made 547 chisels, 172 calking sets, 103 breakers, 90 casing hooks, 16 tunneling bars, 12 yarning irons, 32 stone drills, 13 curb keys, 72 stop-box and meter-box keys, 29 keys for operating valves, 52 fountain bolts; sharpened 11,621 picks and 4,746 chisels and welded 316 new ends on picks; made 25 S wrenches; repaired 67 curb keys and 21 valve-operating keys and 13 tunneling bars; made pipe bands, frost pins, stakes, swedging tools; made irons for two new tool wagons and two water barrels on wheels; made irons for derricks, dressed tools, and made miscellaneous forgings as required for shops.

The carpenters have built card cases, map case, tables, lockers, tool chests, forms for concrete work, building for brass foundry, wagon sheds in stable yard, tool shed, inclosed two sheds in west yard, building extension to smith shop, built derricks, floor sections for stable, hose crossings, mounted water barrels on wheels, built two tool wagons, auto bodies and seats, bookcases, ladders, drawing tables, shelves and counters, lumber rack in loft, watch boxes, pitometer operating boxes, ice chest, platform at storekeeper's office, foundation for power hammer, finished building at Reno pumphouse, made bodies for wagons, carts, etc., put floor in attic of Brightwood lodge, repaired boats for reservoirs, made window and door screens, made repairs on wagons and autos, boxed material for shipment, made patterns for various articles as required, altered dark room, counters and shelving for water registrar, and other jobbing work as required.

The painters have painted and finished buggies, autos, wagons, carts, etc., for stable, made cushions and trimmed buggies, wagons, etc.; painted pumphouse, pumps, and engines and tank at Reno Reservoir; painted fences, pipe, and intake towers at Brightwood Reservoir; painted tool boxes, lockers, watch boxes, pitometer operating boxes, signs, drinking fountains, indicator posts, sheds in west yard, woodwork of stable and wagon sheds, derricks, ice chest, tool shed, cantilevers and pipe on Pennsylvania Avenue Bridge, brass foundry, glazed sash, finished map case, drawing tables, card cases, and other jobbing work as required.

The electrician has taken care of generators, switchboards, motors, lights, electric fans, call bells, wires and lights, telephones, etc., at the station, operated conveyor and economizer scrapers, tested and recharged batteries, connected new motors for drill press and power hammer in smith shop, made extension cords, run conduit and wires and connected fixtures in pumphouse and garage at Reno Reservoir, repaired wires on autos, adjusted blue-printing machine and trimmed arc lamps, operated detonator for blasting, connected electric fixtures on automobiles, put lighting fixtures in Brightwood lodge, soldered ice chest, oil cans, lanterns, galvanized iron pumps, etc., and other miscellaneous work as required.

The janitor and his force have been engaged during the year in cleaning the building and keeping it in a sanitary condition.

Once more I wish to extend my thanks to the employees of the department, and especially to the heads of the various divisions and subdivisions, for the excellent work accomplished.

Very respectfully, your obedient servant,

W. A. McFARLAND,
Superintendent Water Department.

Capt. E. M. MARKHAM,
*Corps of Engineers, United States Army,
Assistant to Engineer Commissioner, District of Columbia.*

TABLE I.—Statement of cash account of the water department for the fiscal year ended June 30, 1911, as stated by the auditor, District of Columbia.

July 1, 1910, balances:		
Cash in Treasury of United States.....	\$78,369.46	
Cash in hands of disbursing officer, District of Columbia..	10,497.23	
Cash in hands of collector of taxes, District of Columbia..	1,251.12	
		\$90,117.81
Receipts:		
Water rents.....	521,581.78	
Taps and stopcocks.....	8,924.35	
Water-main taxes:		
Principal.....	99,807.16	
Interest.....	2,180.37	
Sale of old material.....	960.04	
		633,453.70
Cash repayments:		
Salaries, 1910.....	44.09	
Salaries, 1911.....	12.30	
High service, 1911.....	2,283.28	
		2,339.67
Cash transfer—repayments:		
Salaries, 1911.....	1,935.91	
High service, 1911.....	90,244.91	
		92,180.82
		<u>818,092.00</u>
Expenditures:		
Appropriation, 1911—		
Salaries.....	83,709.75	
Contingent expenses.....	4,987.36	
General expenses.....	35,747.50	
High service and meters.....	574,329.21	
Refunds.....	1,424.73	
		700,198.55

Expenditures—Continued.

Appropriation, 1910—		
Salaries.....	\$3,381.00	
Contingent expenses.....	52.31	
General expenses.....	7,261.72	
		\$10,695.03
Reimbursement of United States and District of Columbia revenues on account of water meters.....		20,000.00
June 30, 1911, balances:		
Cash in Treasury of the United States.....	80,209.83	
Cash in hands of disbursing officer, District of Columbia..	6,586.37	
Cash in hands of collector of taxes, District of Columbia..	402.22	
		87,198.42
		818,092.00

TABLE II.—Statement of the operating expenses of the water department for the year ended June 30, 1911.

	Salaries and per diem labor.	Material expended, cuts to pavements, transportation, and items charged direct.	Total expenditures
Superintendence and engineering.....	\$20,069.78	\$1,752.58	\$21,822.36
Care of property and grounds.....	21,146.68	2,416.00	23,562.68
Maintenance and repair of valves.....	9,168.86	4,284.75	13,453.61
Maintenance and repair of fire hydrants, street hydrants, and fountains.....	7,828.58	4,713.54	12,542.12
Maintenance and repairs of reservoirs.....	4,542.47	3,972.79	8,515.26
New public hydrants and fountains erected.....	599.22	838.96	1,438.18
Water mains laid.....	76,094.06	207,172.83	283,266.89
Leak service.....	13,491.75	6,232.55	19,724.60
Telephone system, including rentals.....	3,056.44	833.36	3,889.80
Stables and hauling account.....	29,648.51	7,316.88	36,965.39
Inspection of pipe and fittings at foundry.....	3,362.10	40.96	3,403.06
Office water registrar, District of Columbia.....	42,482.12	2,311.43	44,793.55
Installing water meters and maintenance and repair thereof.....	14,821.47	33,323.41	48,144.88
Repair and inspection, service pipes.....	19,606.93	8,148.84	27,755.77
Tapping water mains.....	2,365.11	3,800.98	6,166.09
Office of superintendent (clerical force).....	11,832.73	1,600.73	13,433.72
Pitometer division (detection of leaks).....	20,829.40	8,435.57	29,264.97
Tests and experiments.....	5,362.16	100.23	5,462.39
Shopwork.....	8,909.28	3,213.13	12,122.41
Operating pumping engines.....	19,981.57	18,944.55	38,926.12
Deposit work (repaid to department).....	9,493.87	15,208.75	24,702.62
Replacement of fire hydrants, public hydrants, fountains, lowering mains, etc.....	5,602.05	13,700.75	19,302.80
New buildings and extensions.....	5,742.63	8,139.00	13,881.63
Employees in other departments of District of Columbia paid from water-department funds.....	9,499.69		9,499.69
New wells.....	408.19	168.26	576.45
Miscellaneous expenditures for freight, advertising, telegrams, etc.....		103.65	103.65
Total.....	365,945.91	356,774.78	722,720.69
Less credit for transportation furnished by department stables.....	28,328.63	6,927.69	35,256.32
Net charges.....	337,617.28	349,847.09	687,464.37

Charged to general account, viz:

New work (59.2 per cent).....	\$407,017.69
Operating expenses (29.6 per cent).....	203,716.92
General repairs (8.4 per cent).....	57,426.96
Replacement, old work (2.8 per cent).....	19,302.80
Total (100 per cent).....	687,464.37

TABLE III.—*Summary of the distribution system, including mains laid by the United States, the District of Columbia, and on account of repayment work.*

	In service June 30, 1910.	Laid dur- ing year ending June 30, 1911.	Abandoned during year ending June 30, 1911.	In service June 30, 1911.
75-inch diameter.....linear feet..	600			600
48-inch diameter.....do.....	44,311		86	44,225
42-inch diameter.....do.....	23			23
36-inch diameter.....do.....	58,944	18	134	58,828
30-inch diameter.....do.....	48,853	4,470	107	53,216
24-inch diameter.....do.....	21,346	325		21,671
20-inch diameter.....do.....	63,122	14,212	62	77,272
16-inch diameter.....do.....	2,605	51		2,656
12-inch diameter.....do.....	282,915	27,337	1,337	309,915
10-inch diameter.....do.....	9,026			9,026
Total trunk lines.....do.....	531,745	46,413	1,726	576,432
8-inch diameter.....do.....	402,878	91,777	932	493,723
6-inch diameter.....do.....	1,467,880	6,766	4,582	1,470,064
4-inch diameter.....do.....	142,619	5,391	2,213	145,797
3-inch diameter.....do.....	75,992	847	22	76,817
2½-inch diameter.....do.....	242			242
2-inch diameter.....do.....	4,589	872	755	4,706
1½-inch diameter.....do.....	4,276			4,276
1¼-inch diameter.....do.....	2,114			2,114
Grand total.....do.....	2,632,335	152,066	10,230	2,774,171
Stop valves.....	6,691	847	154	7,384
Fire hydrants.....	2,753	157	7	2,903
Public hydrants.....	229	8	20	217
Public sanitary fountains.....	4	2		6
Public horse fountains.....	133	10	3	140
Public wells.....	41	17		58
Water mains lowered.....linear feet..				1,765

TABLE IV.—*Statement showing cost of water mains laid during the year ending June 30, 1911.*

	Size.	Length.	Labor.	Material.	Total.
Davenport Street NW., between De Russey and Howard Streets.....	Inches. 2	Feet. 871.75	\$184.00	\$164.06	\$348.06
Alley, square 70.....	3	106.18	52.00	96.31	148.31
Alley, square 638.....	3	94.84	72.75	118.97	191.72
Alley, square 3069.....	4	12.59			
Alley, square 3069.....	4	698.58	169.88	611.18	781.06
Alley, square 3040.....	4	195.89	62.00	95.44	157.44
Alley, square 582.....	4	311.91	89.25	197.44	286.69
Alley, square 3079.....	4	260.78	104.37	149.10	253.47
Alley, square 2607.....	4	210.04	85.19	203.27	288.46
Alley, square 2669.....	4	178.23	79.94	228.97	308.91
Alley, square 2510.....	6	32.60			
Alley, square 3119.....	4	174.97	39.06	88.44	127.50
Alley, square 3119.....	4	253.20	104.07	253.67	357.74
Alley, square 3038.....	4	78.10			
Alley, square 988.....	8	6.00	15.00	60.05	75.05
Alley, square 988.....	4	185.88	82.50	66.55	149.05
Alley, square 159.....	4	972.03	303.43	799.00	1,102.43
Alley, square 2107.....	4	365.04	77.19	175.08	252.27
Alley, square 812.....	4	164.35	62.75	191.20	253.95
Alley, square 2849.....	4	183.44	64.75	178.65	243.40
Seventeenth Street NW., north from R Street.....	6	67.44	120.49	218.63	339.12
Florida Avenue NW., between Second and R Streets.....	20	9.25			
Avon Place NW., square 1282.....	6	224.06	150.01	178.89	328.90
Avon Place NW., square 1282.....	6	228.00	109.50	224.11	333.61
K Street NW., between Third and Fourth Streets.....	8	6.75			
K Street NW., between Third and Fourth Streets.....	4	13.46	270.24	327.83	598.07
K Street NW., between Third and Fourth Streets.....	6	388.95			
Kearney Street NE., between Thirteenth and Fourteenth Streets.....	6	377.35	483.68	318.99	802.67
Railroad Avenue SE., south of W Street.....	8	221.76	110.31	152.05	262.36
Porter Street NW., between Connecticut Avenue and Thirty-seventh Street.....	8	3,849.99	916.20	2,671.75	3,587.95

TABLE IV.—Statement showing cost of water mains laid during the year ending June 30, 1911—Continued.

	Size.	Length.	Labor.	Material.	Total.
M Street NE., between Bladensburg Road and Twentieth Street.....	Inches. Feet.				
Evarts Street NE., between Queen Chapel Road and Twenty-second Street.....	8 1,035.39	439.93	775.60	\$1,215.53	
Thirtieth Street NW., south from Ordway Street; Twenty-ninth Street NW., south from Ordway Street; Ordway Street NW., west from Thirtieth Street; Connecticut Avenue NW., south from Porter Street.....	8 350.53	134.98	302.34	437.32	
Fourteenth Street NW., between Decatur and Delafield Place.....	4 2.34	1,035.87	1,478.09	2,513.96	
Davenport Street NW., between Forty-sixth and Forty-seventh Streets.....	8 1,919.09	195.49	259.12	454.61	
Forty-first Street NW., between Davenport and Elliott Streets.....	8 266.57	159.31	381.91	541.22	
Sixth Street NW., south from Butternut Street.....	8 431.52	80.91	276.61	357.52	
Kansas Avenue NW., between Randolph and Shepherd Streets.....	8 184.08	77.12	209.55	286.67	
K Street NW., between Connecticut Avenue and Eighteenth Street.....	4 3.12	23.37	47.69	71.06	
Forty-second Street NW., between Fessenden and Harrison Streets.....	8 53.71	506.07	607.54	1,113.61	
Hobart Place NW., between Fifth Street and Park Place; Park Place NW., north from Hobart Place.....	8 15.41	205.56	823.75	1,029.31	
Twenty-sixth Street NW., between Virginia Avenue and G Street.....	8 657.35	263.25	563.98	827.23	
Wisconsin Avenue NW., north from Chesapeake Street.....	6 19.79	235.82	474.81	710.63	
Livingston Street NW., between Connecticut Avenue and Thirty-seventh Street.....	8 479.14	38.00	132.72	170.72	
K Street NE., between Eighth and Ninth Streets.....	8 160.90	233.18	557.22	790.40	
Fourteenth Street SE., between East Capitol and A Streets.....	6 14.42	137.51	279.88	417.39	
Hamilton Place NW., between N and O Streets and First and Third Streets.....	8 321.03	182.63	294.44	477.07	
North Capitol Street NW., south from E Street.....	4 7.86	109.37	378.99	488.36	
Ninth Street NW., between Upshur and Varnum Streets.....	8 10.67	71.50	154.42	225.92	
Nineteenth Street NW., south from Wyoming Avenue.	8 389.13	134.00	374.41	508.41	
Garrison Street NW., between Belt Road and Forty-first Street.....	8 205.61	99.69	173.20	272.89	
Nineteenth Street SE., between Good Hope Road and U Street.....	8 365.71	87.25	206.85	294.10	
Wyoming Avenue NW., west from Connecticut Avenue.....	8 168.33	124.06	282.53	406.59	
Monroe Street NE., between Fourteenth and Fifteenth Streets; Fourteenth Street NE., south from Monroe Street.....	8 207.98	275.57	609.79	885.36	
Marlboro Place NW., south from Taylor Street.....	8 316.67	318.76	600.85	919.61	
Twenty-second Street NE., between Rhode Island Avenue and Kearney Street; Rhode Island Avenue NE., east from Mills Avenue.....	4 10.90	53.50	121.27	174.77	
Girard Street NE., west from Fourteenth Street.....	8 97.65	392.82	947.59	1,340.41	
Parkwood Place NW., between Holmead Place and Fourteenth Street.....	12 395.23	111.94	262.51	374.45	
Channing Street NE., east from North Capitol Street.....	8 300.79	250.44	491.96	742.40	
Kennedy Street NW., between Fourteenth and Sixteenth Streets.....	8 533.49	49.87	143.18	193.05	
H Street SW., between Canal and Half Streets; Canal Street SW., between G and H Streets.....	8 120.76	420.25	579.62	999.87	
Fulton Street NE., east from Twentieth Street.....	8 801.59	130.63	392.71	523.34	
Connecticut Avenue NW., between Porter and Rodman Streets; Rodman Street NW., west from Connecticut Avenue; Thirtieth Street NW., between Ordway and Porter Streets.....	8 544.37	155.00	310.83	465.83	
Piney Branch Road NW., between Dahlia Street and Blair Road.....	4 7.35	1,020.43	1,308.41	2,328.84	
Upshur Street NW., east from Seventh Street.....	8 1,689.96	93.50	299.31	392.81	
Morrison Street NW., between Thirty-ninth Street and Belt Road.....	8 300.70	74.93	309.15	384.08	
Aspen Street NW., east from Georgia Avenue.....	8 232.16	224.19	762.87	987.06	
Twenty-fourth Street NE., between Woodbridge and Irving Streets; Irving Street NE., between Twenty-fourth and Twenty-sixth Streets.....	8 817.98	183.43	435.81	619.24	
River Road NW., south from Fessenden Street.....	8 547.35	377.44	701.79	1,079.23	
Park Place SE., between Twenty-third and Twenty-fifth Streets.....	8 1,778.55	457.12	1,322.76	1,779.88	
	8 158.70	56.81	179.63	236.44	

TABLE IV.—Statement showing cost of water mains laid during the year ending June 30, 1911—Continued.

	Size.	Length.	Labor.	Material.	Total.
	<i>Inches.</i>	<i>Feet.</i>			
New York Avenue NW., between Nineteenth and Twentieth Streets; Twentieth Street NW., between New York Avenue and C Street; Twenty-first Street NW., between D Street and New York Avenue....	6 8	233.67 1,050.01	\$504.12	\$1,272.97	\$1,777.09
Macomb Street NW., between Thirty-fourth and Thirty-fifth Streets.....	8	608.32	155.69	488.78	644.47
Quincy Street NE., between Thirteenth and Fourteenth Streets.....	4 6	5.15 9.55	240.63	698.18	938.81
Randolph Place NW., west from First Street.....	8 6	759.31 13.81	138.19	292.93	431.12
Eighth Street NE., south from L Street.....	8 6	293.56 5.29	91.68	174.39	266.07
Thirtieth Street NW., between Dumbarton and P Streets.....	8 8	240.10 461.98	162.56	383.22	545.78
G Street NW., between Tenth and Eleventh Streets..	8	241.47	179.55	311.81	490.86
Florida Avenue NW., between Seaton and U Streets..	8	88.50	75.87	95.96	171.83
Evarts Street NE., east from Twenty-fourth Street...	4 8	10.52 170.35	45.25	129.38	174.63
Twelfth Street NE., north from Irving Street.....	6 8	3.67 180.55	95.00	144.27	239.27
Keokuk Street NW., west from Belt Road.....	8 12	234.81 3.50	84.12	204.21	288.33
Laurel Street NW., between Eastern Avenue and Second Street; Second Street NW., between Laurel and Whittier Streets; Whittier Street NW., between First and Second Streets; First Street NW., between Whittier and Van Buren Streets.....	8	1,885.01	540.87	1,356.18	1,897.05
Nineteenth Street NW., south from Belmont Road; Belmont Road NW., west from Nineteenth Street..	8 6	398.59 9.54	146.44	262.91	409.35
Dahlia Street NW., west from Piney Branch Road..	8 8	258.79 202.77	115.94	196.07	312.01
Seventh Street NW., north from Shepherd Street..	8	202.77	87.50	211.34	298.84
Taylor Street NW., between Seventh and Eighth Streets.....	6 8	5.11 493.38	122.00	363.02	485.02
Decatur Street NW., between Sixteenth and Seventeenth Streets.....	8	717.26	266.81	510.19	777.00
Eighth Street NW., between Rock Creek Church Road and Quincy Street.....	6 8	20.89 324.59	145.31	274.41	419.72
Twentieth Street NW., south from Biltmore Street..	8	264.47	122.00	194.25	316.25
Columbia Road NW., east of Georgia Avenue.....	8	186.82	59.75	133.80	193.55
Legation Street NW., east from Thirty-ninth Street..	8	214.37	65.00	158.36	223.36
Jewett Street NW., between Conduit Road and Potomac Avenue; Carolina Place NW., between Jewett and Macomb Streets; Sherrier Place NW., between Jewett Street and Manning Place; Manning Place NW., between Sherrier Place and Conduit Road.....	8	3,061.66	1,320.74	2,187.31	3,508.05
Piney Branch Road NW., south from Butternut Street.....	8	155.52	82.81	131.65	214.46
Raum Street NE., west from Trinidad Avenue; Trinidad Avenue NE., south from Raum Street..	6 8	11.85 838.60	286.94	728.61	1,015.55
Butternut Street NW., west from Fifth Street; Fifth Street NW., north from Butternut Street.....	8	330.57	123.00	314.49	437.49
Monroe Street NE., west from Seventeenth Street...	8	299.72	98.00	216.85	314.85
Columbia Road NW., east of Georgia Avenue.....	8	297.65	72.37	161.41	233.78
Tennessee Avenue NE., north from D Street.....	8	159.24	99.18	207.20	306.38
Connecticut Avenue NW., between Garfield Street and Cathedral Avenue.....	8	662.48	223.37	677.85	901.22
Laurel Street NW., west from Second Street.....	8	292.42	88.18	217.69	305.87
Twentieth Street NW., north from Park Road.....	4 8 3	35.80 801.28 25.00	403.81	676.01	1,079.32
Neal Place NW., square 512.....	6 8	33.45 382.17	182.88	300.95	483.83
Grant Road NW., between Nourse Road and Chesapeake Street.....	8	436.75	345.56	385.01	730.57
Spring Road NW., between Tenth and Eleventh Streets.....	8	365.10	131.06	269.25	400.31
Thirty-second Place NW., south from Tennyson Street.....	8	295.91	117.62	286.16	403.78
Spring Road NW., between Eleventh and Thirteenth Streets.....	6 8	5.01 418.20	117.38	271.91	389.29
Kennedy Place NW., west from Sixteenth Street; Sixteenth Street NW., north from Kennedy Street..	8	820.07	271.06	640.86	911.92
Thirty-eighth Street NW., between Keokuk and Jocelyn Streets.....	4 8	5.17 465.45	203.12	416.02	619.14
Warder Street NW., north from Irving Street; Kenyon Street NW., east and west from Warder Street..	8	1,014.91	392.75	731.78	1,124.53

TABLE IV.—Statement showing cost of water mains laid during the year ending June 30, 1911—Continued.

	Size.	Length.	Labor.	Material.	Total.
	Inches.	Feet.			
Florida Avenue NW., between Thirteenth and Fourteenth Streets; Fourteenth Street NW., north from Florida Avenue; Thirteenth Street NW., between Florida Avenue and Belmont Street.....	8	961.02	\$349.25	\$827.04	\$1,176.29
Kenyon Street NW., east from Eighteenth Street....	8	259.86	158.75	259.78	418.53
Girard Street NW., east from Eleventh Street.....	8	156.30	69.38	112.32	181.70
Georgia Avenue NW., north from Rock Creek Church Road.....	8	192.60	154.18	189.09	343.27
Twenty-eighth Street NW., south of Cathedral Avenue.	8	241.50	135.75	161.87	297.62
Kennebec Street NW., west from Thirty-eighth Street; Jocelyn Street NW., west from Thirty-eighth Street; Jenifer Street NW., west from Thirty-eighth Street; Thirty-eighth Street NW., between Jocelyn and Harrison Streets.....	6 8	13.25 2,961.39	1,085.57	2,229.31	3,314.88
Thirteenth Street NW., between Crittenden and Decatur Streets.....	8	498.04	294.75	457.67	752.42
Twenty-second Street SE., between Q Street and Naylor Road.....	8	188.21	58.50	123.13	181.63
Rhode Island Avenue NW., west from Seventeenth Street.....	4 8	11.25 277.95	246.18	378.44	624.62
Spring Place NW., east from Fourteenth Street Road.	8	275.51	97.01	303.25	400.26
Sixteenth Street NW., between Newton and Monroe Streets.....	6 8	19.33 231.70	121.25	251.53	372.78
Eighteenth Street NE., between Benning Road and Gales Street.....	4 8	6.00 123.10	99.64	256.69	356.33
Wyoming Avenue NW., east from Twenty-third Street.....	8	254.20	106.19	238.55	344.74
Twenty-seventh Street NW., south of Garfield Street.	8	92.35	33.37	61.46	94.83
A Street NE., east from North Carolina Avenue.....	8	68.35	33.50	63.66	97.16
Seventeenth Street SE., between Minnesota Avenue and T Street.....	8	416.38	151.88	310.53	462.41
Fifteenth Street SE., between V Street and Good Hope Road.....	6 8	12.73 543.20	197.56	514.85	712.41
Otis Place NW., west from Georgia Avenue; Otis Place NW., east from New Hampshire Avenue.....	8	554.16	142.25	377.85	520.10
Central Avenue NE., south from Brentwood Road....	8	41.95	16.25	34.68	50.93
Evarts Street NE., east from Twentieth Street.....	8	202.08	86.81	132.65	219.46
Macomb Street NW., between Ross Place and Thirty-fourth Street.....	8	1,571.30	329.49	1,027.63	1,357.12
Morris Road SE., between Nichols Avenue and Mount View Place.....	8	339.70	123.92	230.20	354.12
Warder Street NW., between Newton and Otis Places.	8	352.62	141.26	342.63	433.89
E Street SE., west from Third Street.....	8	208.64	74.82	172.61	247.43
Eighth Street NW., north from Alison Street.....	8	195.57	71.75	157.48	229.23
South Carolina Avenue SE., east from Kentucky Avenue; Kentucky Avenue SE., south from South Carolina Avenue.....	4 8	10.40 447.69	164.38	404.05	568.43
Morris Road SE., east from Bryan Place.....	8	283.53	106.35	193.26	299.61
Columbia Road NW., east of Georgia Avenue.....	8	240.64	117.56	226.78	344.34
Perry Place NW., west from Holmead Place.....	8	409.95	167.37	378.30	547.67
Huntington Street NW., west from Thirty-eighth Street.....	8	632.75	163.13	569.73	732.86
Webster Street NW., between Ninth Street and Kansas Avenue; Kansas Avenue NW., north from Webster Street.....	8	549.48	228.63	423.19	651.82
Twelfth Street NE., between Lawrence and Monroe Streets.....	8	359.53	190.56	303.48	494.04
Intersection of Ninth and S Streets NW.; intersection of Ninth and French Streets NW.....	6 8	21.77 209.11	189.07	413.69	602.76
Seventh Street NW., south from Elder Street.....	8	338.32	136.25	330.57	466.82
Twenty-eighth Street SE., north from Pennsylvania Avenue.....	8	238.98	109.56	245.02	354.58
Bryant Street NW., west from Pumping Station....	8	233.66	160.82	262.69	423.51
C Street SW., between Delaware Avenue and South Capitol Street.....	8	359.05	150.88	475.53	626.41
Conduit Road NW., north from Manning Place.....	8	657.35	143.50	547.46	690.96
Nineteenth Street NW., between B and C Streets....	8	471.19	135.56	426.04	561.60
New Hampshire Avenue NW., between Upshur and Taylor Streets.....	8	380.59	155.00	345.15	500.15
Twentieth Street NW., north of Park Road.....	4 8	2.55 66.61	87.12	110.21	197.33
Fourteenth Street NE., south from C Street.....	6 8	63.42 218.05	125.76	191.75	317.51
F Street NE., between Fourth and Fifth Streets....	6 8	5.48 286.15	140.89	316.02	456.91
Georgia Avenue NW., between Allison and Buchanan Streets.....	8	457.53	245.56	375.80	621.36
W Street NW., between Conduit Road and Cottrell Place; Cottrell Place NW., north from W Street....	8	626.94	211.75	564.56	776.31
Irving St. NW., between Sherman and Georgia Avenues.....	8	522.92	183.32	387.39	570.71

TABLE IV.—Statement showing cost of water mains laid during the year ending June 30, 1911—Continued.

	Size.	Length.	Labor.	Material.	Total.
	<i>Inches.</i>	<i>Feet.</i>			
Legation Street NW., between Thirty-ninth Street and Connecticut Avenue.....	8	270.45	\$67.37	\$235.79	\$303.16
Conduit Road NW., south from Newark Street.....	8	240.00	35.50	144.75	180.25
Potomac Avenue NW., between Macomb and Jewett Streets.....	8	668.13	180.25	583.75	764.00
Huntington Street NW., west from Thirty-ninth Street	8	259.09	53.25	252.39	305.64
Pennsylvania Avenue NW., between Twenty-sixth and Twenty-seventh Streets.....	4	11.25	46.50	85.95	132.45
Harrison St. NW., between Forty-second Street and Belt Road.....	8	103.61			
Tilden Street NW., east from Twenty-ninth Street....	8	670.77	181.87	661.98	843.85
Ashmead Place NW., east from Connecticut Avenue..	20	8.75			
Foxhall Road NW., between Forty-fourth and P Streets.....	8	488.92	467.12	463.96	931.08
New Hampshire Avenue NW., south from Quincy Street.....	4	19.88			
North Carolina Avenue NE., between Fifteenth and Sixteenth Streets.....	8	95.25	82.24	105.53	187.77
Morrison Street NW., between Thirty-ninth Street and Connecticut Avenue.....	8	758.73	249.20	654.14	903.34
Forty-second Street NW., south from Wisconsin Avenue.....	8	137.33	38.06	90.36	128.42
Seventeenth Street NE., between Lawrence and Monroe Streets.....	4	3.50			
Ninth Street NW., between S and French Streets; alley, square 363.....	6	7.85	182.19	258.18	440.37
Franklin Street NE., east from Fourteenth Street...	8	290.75			
P Street NW., between Forty-fourth Street and Foxhall Road.....	8	437.17	136.38	272.37	408.75
Kenyon Street NW., between Eleventh Street and Sherman Avenue.....	8	149.48	78.75	163.59	242.34
Taylor Street NW., between Seventh Street and New Hampshire Avenue; New Hampshire Avenue NW., north from Taylor Street.....	8	243.83	91.06	168.01	259.07
Fifteenth Street NW., between S and T Streets.....	4	108.58			
Twenty-sixth Street NE., between Franklin and Hamlin Streets.....	6	17.97	168.87	328.87	497.55
Conduit Road NW., between Newark Street and Little Falls Road.....	8	244.22			
Sherrier Place NW., north of Edmunds Place.....	4	5.12	52.50	108.36	100.86
Nineteenth Street NW., south from Lamont Street...	8	142.20			
Galen Street SE., east from Green Street.....	8	684.00	229.25	566.84	796.09
Fourteenth Street NW., between Gallatin and Hamilton Streets.....	6	25.72	142.68	305.13	447.81
Hall Place NW., west from Wisconsin Avenue.....	8	273.41			
Second Street NE., north from T Street.....	8	244.53	65.87	200.25	266.12
Potomac Avenue NW., south from Jewett Street.....	6	113.55	481.49	421.74	903.23
Sixteenth Street NW., between Kennedy and Longfellow Streets; Longfellow Street NW., west from Sixteenth Street.....	8	540.14			
Rock Creek Church Road NW., north and south from Spring Road.....	8	839.88	339.88	774.52	1,114.40
Eighteenth Street NW., between Lamont Street and Park Road.....	8	1,145.10	193.12	888.44	1,081.56
Sherman Avenue NW., north from Fairmont Street; Fairmont Street NW., east from Sherman Avenue..	8	74.47	36.50	53.18	89.68
Forty-first Street NW., between Keokuk and Legation Streets.....	8	392.86	155.06	379.60	534.66
Thirteenth Street SE., north from L Street.....	8	95.00	26.75	80.93	107.68
Third Street NE., between East Capitol and Maryland Avenue.....	8	375.51	152.12	288.47	440.59
Ashmead Place NW., between Connecticut Avenue and Belmont Road.....	8	405.19	222.31	377.21	599.52
Columbia Road NW., west from Park Place; Park Place NW., north and south from Columbia Road..	4	2.77	107.44	133.50	240.94
Klingle Road NW., west from Rosemont Street.....	8	172.56			
W Place NW., west from Wisconsin Avenue; Hall Place NW., north of W Place.....	8	190.65	73.44	160.50	233.94
Ellicott Street NW., west from Thirty-ninth Street; Thirty-ninth Street NW., between Ellicott and Fessenden Streets; Fessenden Street NW., east from Thirty-ninth Street.....	4	4.50	343.57	690.25	1,033.82
	8	810.72			
	4	5.65	151.95	337.69	489.64
	8	371.67			
	8	327.55	141.19	219.30	360.49
	8	436.00	167.82	216.29	384.11
	8	355.75	114.25	235.24	349.49
	6	13.73			
	8	213.35	127.75	193.80	321.55
	3	4.75			
	4	3.40	663.15	1,063.50	1,726.65
	6	7.10			
	8	1,067.73			
	8	433.78	169.81	361.88	531.69
	8	827.12	233.25	665.52	898.77
	8	159.80	79.75	159.93	239.68
	8	632.95	210.00	556.16	766.16
	8	717.38	258.74	580.28	839.02

TABLE IV.—Statement showing cost of water mains laid during the year ending June 30, 1911—Continued.

	Size.	Length.	Labor.	Material.	Total.
Connecticut Avenue NW., between Keokuk and Huntington Streets; Kanawha Street NW., between Connecticut Avenue and Thirty-ninth Street; Jocelyn Street NW., between Connecticut Avenue and Thirty-ninth Street; Jenifer Street NW., between Connecticut Avenue and Thirty-ninth Street; Ingomar Street NW., between Connecticut Avenue and Thirty-ninth Street; Huntington Street NW., between Connecticut Avenue and Thirty-eighth Street; Thirty-ninth Street NW., between Keokuk and Huntington Streets.....	<i>Inches.</i> 4 8 12	<i>Feet.</i> 39.08 5,639.90 1,343.76	\$1,788.82	\$5,777.90	\$7,566.72
Fessenden Street NW., between Forty-seventh and Wisconsin Avenue; Forty-seventh Street NW., between Fessenden and Brandywine Streets.....	8 12	68.48 2,993.82	1,050.88	3,776.74	4,827.62
Keokuk Street NW., between Belt Road and Connecticut Avenue; Thirty-ninth Street NW., north from Keokuk Street.....	4 8 12	7.62 153.81 2,351.85	812.56	3,298.98	4,111.54
Minnesota Avenue SE., west from Pennsylvania Avenue; Pennsylvania Avenue SE., between Minnesota Avenue and Twenty-eighth Street.....	6 8 12	4.35 22.46 1,493.67	667.81	1,657.74	2,325.55
Keokuk Street NW., between Connecticut Avenue and Thirty-seventh Street; Kanawha Street NW., east from Connecticut Avenue.....	6 8 12	17.85 490.22 687.13	378.99	1,331.47	1,710.46
P Street NW., between Thirty-fifth and Thirty-seventh Streets; Thirty-seventh Street NW., between O and P Streets.....	4 6 12	30.30 9.72 1,124.48	497.81	1,520.86	2,018.67
Pennsylvania Avenue SE., east from Twenty-eighth Place.....	8 12	10.30 258.51	453.81	551.08	1,004.89
Fourth Street NE., between Channing and Franklin Streets; Franklin Street NE., between Fourth and Seventh Streets; Seventh Street NE., between Franklin and Hamlin Streets; Hamlin Street NE., between Seventh and Tenth Streets.....	4 6 8 12	64.48 7.50 11.58 4,176.01	1,628.81	5,069.12	6,697.93
Mount Pleasant Street NW., between Irving Street and Columbia Road; Intersection of Sixteenth Street NW. and Mount Pleasant Street.....	6 8 12	72.22 11.01 981.09	548.63	1,342.49	1,891.12
R Street NW., west from Twenty-second Street.....	6 12	43.06 486.69	322.38	956.11	1,278.49
Connecticut Avenue NW., between Florida Avenue and California Street.....	4 8 12	16.45 39.62 896.80	592.56	1,538.72	2,131.28
Connections and blow-offs in various sections.....	4 6 8 12 20 30	140.56 1,185.07 1,224.85 231.18 433.55 32.06	5,510.91	8,746.96	14,257.87
Fire hydrants erected in new locations.....	6 8	808.79 507.27	2,052.76	6,399.48	8,452.24
Uncompleted water mains, June 30, 1910.....			42.30	840.80	883.10
Uncompleted water mains, June 30, 1911.....	8	90.93	119.19	407.32	526.51
Superintendence and engineering, 5 per cent on total cost.....			52,194.42	117,671.74	169,866.16
Total charged to water-department funds.....			2,609.72	5,883.58	8,493.30
Special appropriations.			54,804.14	123,555.32	178,359.46
Appropriation, act of Congress approved May 18, 1910, for the "Extension of water trunk mains to Congress Heights, D. C.".....	4 6 8	165.43 503.05 241.31			
Appropriation, act of Congress approved Mar. 2, 1911.....	12 16 20	99.40 50.94 13,684.64	15,216.66	66,344.67	81,561.33
Total available.....	24	324.92			
Expenditures to June 30, 1911.....	30	4,351.86			
Unexpended balance, June 30, 1911.....		24,438.67			

TABLE IV.—Statement showing cost of water mains laid during the year ending June 30, 1911—Continued.

	Size.	Length.	Labor.	Material.	Total.
<i>Special appropriations—Continued.</i>					
Appropriation, act of Congress approved May 18, 1910, for the "Extension of 12-inch water main from Elliot Place along the Conduit Road to Weaver Terrace, and for laying 8-inch water mains in Forty-seventh Place, Ashby Street, Edmunds Street, and Sherrier Place".....	<i>Inches.</i>	<i>Feet.</i>			
Expenditures to June 30, 1911.....	4 6 8 12	5.53 66.52 1,116.99 9,802.13	\$5,724.44	\$14,204.04	\$19,928.48
Unexpended balance, June 30, 1911.....					
4,071.52					
Appropriation, act of Congress approved Mar. 2, 1911, "For extension of water trunk mains to Benning, D. C.".....					
Expenditures for labor and material to June 30, 1911.....			348.82	3,068.80	3,417.62
Unexpended balance, June 30, 1911.....					
41,682.38					
Aggregate cost.....			76,094.06	207,172.83	283,266.89

TABLE V.—Statement of length and cost of water mains laid from July 1, 1878, to June 30, 1911, paid for out of the water department funds.

Year.	48-inch.	42-inch.	36-inch.	30-inch.	24-inch.	20-inch.	16-inch.	12-inch.	10-inch.	8-inch.
	<i>Lin. ft.</i>	<i>Lin. ft.</i>	<i>Lin. ft.</i>	<i>Lin. ft.</i>	<i>Lin. ft.</i>	<i>Lin. ft.</i>	<i>Lin. ft.</i>	<i>Lin. ft.</i>	<i>Lin. ft.</i>	<i>Lin. ft.</i>
1878.....								3,719		
1879.....								7,409		
1880.....										
1881.....										
1882.....										
1883.....								1,625		26
1884.....								1,038		
1885.....								763		
1886.....								1,938	791	
1887.....						4,835		1,124	2,998	
1888.....								731		
1889.....					2,312	5,140		5,626	2,784	
1890.....										
1891.....								5,201		
1892.....						2,926	2,500	10,163		
1893.....								6,473		
1894.....						278		39,386		
1895.....					6,617			27,731		
1896.....					294	8,874		11,873		
1897.....						2,180		6,877		
1898.....								7,698		907
1899.....						1,914		2,220		
1900.....			10,902		35	1,282	48	157		
1901.....								10,026		
1902.....				1,227		203		14,010		
1903.....	2,123		14,601			35		9,411		
1904.....	4,019	23	5,231	6,332	18	8,668	24	13,802	68	40,777
1905.....			2,701	9	42			1,014		31,756
1906.....	8,155		97		40	716		3,985		34,880
1907.....			2,697	3,650	4		48	12,066	6	55,798
1908.....				20	10	98		5,513		50,428
1909.....				13	35	11		6,478	4	57,010
1910.....						15,601	25	18,875	7	83,787
1911.....				4,384	325	14,136	51	27,325		91,569
Total.....	14,237	23	36,269	15,635	9,732	66,897	2,696	264,257	6,658	446,922

TABLE V.—Statement of length and cost of water mains laid from July 1, 1878, to June 30, 1911, paid for out of the water department funds—Continued.

Year.	6-inch.	4-inch.	3-inch.	2½-inch.	2-inch.	1½-inch.	1¼-inch.	Total.	Total cost.
	<i>Lin. ft.</i>	<i>Lin. ft.</i>	<i>Lin. ft.</i>	<i>Lin. ft.</i>	<i>Lin. ft.</i>	<i>Lin. ft.</i>	<i>Lin. ft.</i>	<i>Lin. ft.</i>	
1878.....	12,781	30						16,570	\$14,846.20
1879.....	8,516	1,397						17,322	19,436.03
1880.....	3,024							3,024	
1881.....	3,709							3,709	3,110.70
1882.....	1,920							1,920	1,626.43
1883.....	4,084							5,735	8,073.70
1884.....	8,972							10,010	10,492.51
1885.....	27,766	358	485					29,372	25,865.35
1886.....	35,192		6,623					44,544	40,025.10
1887.....	30,041	292	7,124					46,414	56,951.00
1888.....	9,123	9,148	3,937					22,629	17,626.63
1889.....	36,742	6,571	8,753					67,923	79,342.16
1890.....	34,737	2,856	2,855					40,448	19,113.54
1891.....	56,893	3,142	11,013					76,249	49,762.65
1892.....	88,709	3,342	1,286					108,926	74,733.04
1893.....	54,173	8,336	3,458					72,440	56,380.39
1894.....	86,632	12,832	2,918					142,046	126,500.55
1895.....	103,785	5,442	2,733					146,308	134,502.31
1896.....	61,464	1,738	3,262					87,505	89,395.12
1897.....	71,266	10,595	992			2,104		94,014	77,954.81
1898.....	52,371	6,735	2,790		1,633	500		72,634	48,661.70
1899.....	84,291	4,662	2,701		79	133		96,060	65,774.52
1900.....	53,838	4,211	2,116		17	453		73,059	114,784.72
1901.....	52,018	2,187	935			646		65,812	47,426.71
1902.....	35,481	1,414	1,632	242				54,209	57,676.33
1903.....	32,264	2,004	357				1,045	61,840	98,498.90
1904.....	2,913	1,745	1,637		1,397			86,644	404,294.81
1905.....	1,228	578	2,671					39,963	73,402.12
1906.....	551	781	722				976	50,903	176,297.98
1907.....	2,209	3,081	869		580			81,008	197,066.91
1908.....	3,279	3,089	1,016		424			63,877	114,411.42
1909.....	4,283	1,692	1,029					70,555	115,701.97
1910.....	3,497	2,900	1,292			406	113	126,503	214,512.38
1911.....	4,799	5,901	231		872			148,693	283,266.89
Total.....	1,072,551	106,159	75,437	242	5,062	4,242	2,134	2,129,153	2,917,513.58

TABLE VI.—Statement of the average cost per foot for laying water mains for the year ended June 30, 1911.

Sizes.	Linear feet.	Cost of labor per linear foot.	Cost of material per linear foot.	Total cost of labor and material per linear foot.	Cost of repairing pavements per linear foot.	Total cost per linear foot laid.
2-inch.....	872	\$0.211	\$0.188	\$0.399		\$0.399
3-inch.....	214	.583	.527	1.110	\$0.478	1.588
4-inch.....	4,721	.313	.449	.762	.323	1.085
6-inch.....	1,315	.862	.840	1.702	.124	1.826
8-inch.....	87,562	.396	.840	1.236	.020	1.256
12-inch.....	27,527	.460	1.242	1.702	.039	1.741

NOTE.—Excessive cost of 3-inch, 4-inch, and 6-inch mains due to having been laid in short sections in alleys and connections necessitating extra valves and fittings.

TABLE VII.—Statement of the length and cost of water mains laid for the extension of high service system of water distribution from July 1, 1893, to June 30, 1911.

Sizes.	In service June 30, 1910.	Laid during year ended June 30, 1911.	Total in service June 30, 1911.
	<i>Linear feet.</i>	<i>Linear feet.</i>	<i>Linear feet.</i>
1½-inch.....	2,134		2,134
1½-inch.....	3,123		3,123
2-inch.....	2,099	872	2,971
3-inch.....	9,562	231	9,793
4-inch.....	19,385	5,001	24,386
6-inch.....	230,017	4,799	234,816
8-inch.....	323,708	91,569	415,277
10-inch.....	85		85
12-inch.....	165,746	27,325	193,071
16-inch.....	145	51	196
20-inch.....	39,861	14,136	53,997
24-inch.....	7,096	325	7,421
30-inch.....	11,251	4,384	15,635
36-inch.....	36,229		36,229
42-inch.....	23		23
48-inch.....	14,297		14,297
Total.....	864,761	148,693	1,013,454

Total cost to June 30, 1910..... \$1,788,182.80
 Total cost for the year ending June 30, 1911..... 283,266.89

Aggregate cost to June 30, 1911..... 2,071,449.69

TABLE VIII.—Statement of the number of public wells in use during the year ended June 30, 1911.

	Shallow wells.	Deep wells.	Total.
In service June 30, 1910.....	11	30	41
New wells drilled and placed in service during year 1911.....		2	2
Transferred from school department and other sources.....		15	15
Total in service June 30, 1911.....	11	47	58

REPORT OF THE WATER REGISTRAR.

WASHINGTON, September 28, 1911.

SIR: I have the honor to submit the annual report of the revenue and inspection branch of the water department, showing in detail the work accomplished during the fiscal year ended June 30, 1911:

OFFICE WORK.

Accounts audited.....	57,000
Accounts posted and checked.....	76,236
Accounts examined for fractional charges.....	124,780
Authority cards verified and filed.....	2,062
Cards indexed.....	4,995
Cash receipts posted.....	\$633,453.70
Cards canceled:	
Schedule.....	251
Meter.....	87
Cards revived.....	22
Checking bills on agents' lists.....	12,360
Change of house numbers on records.....	805
Compiling real-estate lists.....	1,286
Coupons assorted and filed.....	286,190
Curb cock and box locations.....	4,207
Curb cocks issued.....	2,380
Cut-off orders made and recorded.....	4,507
Cut-off and turn-on orders filed.....	6,982

Delinquent water-rent notices made and compared.....	15, 351
Delinquent water-rent lists made and compared.....	1, 873
Drawings, plats, etc., made.....	273
Emergency examinations made in the field.....	964
Examination of records for private services, etc.....	374
Examination of service pipes recorded.....	1, 958
Files indorsed and returned.....	241
Files indexed.....	241
Files received and abstracts made.....	145
House-to-house examinations recorded.....	5, 234
House-to-house leaks found and recorded.....	4, 204
House-to-house premises in which leaks were found.....	3, 659
Index cards made and checked.....	175
Letters and cards received.....	3, 326
Letters and cards sent out.....	7, 733
Letters copied.....	4, 742
Letters indexed.....	4, 742
Lists made and compared.....	703
Lists indexed (agents' requests for bills).....	1, 295
Meter accounts opened, new.....	3, 184
Meter bills made and checked.....	32, 923
Meter accounts computed.....	99, 385
Meter computations checked.....	47, 830
Meter account cards made and checked.....	398
Meter cards checked.....	3, 478
Meters, changes on records recorded.....	1, 399
Meter installation cards made.....	3, 060
Meter tests received and recorded.....	2, 129
Meters ordered out for test, etc.....	1, 016
Meters ordered repaired.....	929
Meter locations platted on cards.....	20
Meter reading cards made, new.....	10, 094
Notices of leaks to agents, etc.....	5, 022
Permits for use of fire hydrants.....	113
Permits for use of water for building purposes.....	999
Plumbers' permits examined and approved.....	1, 331
Plats made showing location of taps.....	1, 607
Repairs to services recorded.....	2, 035
Record cards made and checked.....	1, 936
Refunds of duplicate and erroneous payments.....	250
Reports checked, inspectors'.....	4, 161
Reports made, weekly.....	52
Requests for bills indexed and filed.....	1, 295
Schedule accounts opened, new.....	1, 935
Schedule bills made and checked.....	71, 795
Second examination of house-to-house leaks recorded.....	2, 917
Special examinations recorded (for rating premises).....	9, 775
Taps issued.....	2, 096
Transfer of tap records from books to card system.....	8, 330
Tap locations recorded.....	2, 385
Turn-on-orders made and recorded.....	2, 618
Vacant houses listed and cut off.....	1, 403
Water-main measurements given to plumbers.....	8, 548
Work orders made.....	4, 490

FIELD WORK, GENERAL.

Cut off by request.....	915
Cut off for nonpayment, meter accounts.....	88
Cut off for nonpayment, schedule accounts.....	95
Cut off for vacancy.....	1, 403
Cuts repaired.....	500
Delinquent water-rent notices served by inspectors.....	3, 228
House-to-house examinations.....	29, 684
House-to-house leaks found.....	4, 378
Meter bills delivered by inspectors.....	25, 793
New water services, etc., inspected.....	1, 958
Notifications by inspectors for nonpayment.....	3, 264

Repairs to water services, etc., inspected.....	2, 035
Schedule bills delivered by inspectors.....	24, 386
Special examinations for ratings.....	5, 464
Taps inserted in water mains.....	2, 361
Turned on by request.....	2, 470

FIELD WORK, LEAKS, AND WASTES.

Abandoned water services cut off at tap in main.....	1, 439
Cut off at box for leak.....	963
Cut off at main for leak.....	105
Leaks found on water mains.....	87
Locating stopcock boxes, services, and taps.....	5, 848
Second house-to-house examinations for leaks.....	3, 353
Special leak examinations.....	15, 577
Special leak examinations, second inspection.....	20, 544
Tracing leaks to determine their source.....	5, 672

WATER METERS.

Adjusting meter pits to grade, repairs, etc.....	287
District of Columbia meters installed.....	3, 060
Examinations relative to leaks, pressure, etc.....	325
Leaks repaired.....	22
Meters read.....	101, 267
Removed for nonregistration, test, etc.....	1, 016
Repaired in place.....	195
Reset after repairs, etc.....	344
Pit tops replaced.....	42
Temporary meters installed.....	416
Temporary meters removed.....	365

SERVICE PIPES, ETC.

Connecting services.....	222
Leaks repaired on services.....	17
New curb cocks placed.....	20
Pressure regulators installed.....	46

SUMMARY.

Leaks found during year:	
Service pipes.....	3, 167
Stopcocks.....	213
Street washers.....	426
Yard fixtures.....	6, 785
House fixtures.....	9, 277
Water mains.....	87
Total.....	19, 955

ORGANIZATION.

For convenience in handling the work, the force is subdivided as follows:

Subdivision 1 (W. R. Chapell, in charge).—Posting, checking, auditing accounts, making bills, preparing cut-off notices, notifications for nonpayments, and general supervision of all work pertaining to flat-rate accounts.

Subdivision 2 (E. H. Grove, in charge).—Meter accounts, inspection of new services, tapping water mains, making bills, regular and excess consumptions, accounts in arrears, nonpayments, reports, records, refunds, leaks, repairs to services, correspondence, and general supervision of all matter pertaining to meter accounts.

Subdivision 3 (J. A. Mudd, in charge).—The work of this subdivision consists in verification of information furnished by the owner of premises where water is to be introduced, as to house, lot numbers, and rating, and also changes of street names and house numbers and entry of same on the office records.

Subdivision 4 (C. F. Eckloff, in charge).—The duties of this subdivision consist in the examining of all permits for the introduction of water, the issuing of taps and stopcocks, and permits for use of water for building purposes.

Subdivision 5 (H. C. Schaeffer, in charge).—Records for meter installation, repairs, cost of maintenance, meter computations, readings, and inspections in the field.

Subdivision 6 (A. Marks, in charge).—Leak examinations, cutting off and turning on water, locating services, repairs and connecting of services, and repairs to stopcock boxes.

Subdivision 7 (W. F. Sullivan, in charge).—Meter installation and removal of meters for repairs.

LEAKS AND WASTES.

The work of cutting off abandoned water services and the supply to vacant premises was continued during the past year and a large amount of wastage of water was prevented by prompt action in such cases.

One thousand four hundred and thirty-nine abandoned water services were cut off at the tap in the main during the year.

One thousand four hundred and three vacant premises were cut off.

SERVICE CONNECTIONS.

One thousand nine hundred and seventy-two new service connections were made, inspected, and locations recorded during the year.

Two thousand and thirty-five repairs, etc., to water services and appurtenances were inspected and recorded.

In order to give prompt action to the inspection of service pipes it has been necessary at times, owing to the great increase in work of this character, to send out as many as four men to assist the inspector having this work in charge. It is the aim of the office to make such inspections within one hour of the time specified by the plumber. These men, while not so engaged, are employed on clerical work in the office.

WATER METERS.

Three thousand one hundred and eighty-four water meters were installed during the year and 187 were discontinued, making the total number now in use 18,942.

To facilitate the work in connection with the meters in service, the following system has been adopted and has been in successful operation since its inception:

Meters are separated under these heads, viz: Private meters where the consumption exceeds 100,000 cubic feet per quarter; private meters where the consumption does not exceed 100,000 cubic feet per quarter; fire-service meters; District meters that have not exceeded the maximum allowance for the annual minimum payment; District meters that have exceeded the maximum allowance for the annual minimum payment; District meters in premises where leaks were found; District meters in municipal institutions.

Private meters in business establishments that exceed 100,000 cubic feet a quarter are read weekly, and a statement of the consumption is recorded on a card provided by this office, which is posted in some convenient place on the premises. This plan has proved most satisfactory to the consumer and to the office, inasmuch as it has reduced the number of arguments in regard to large bills to a minimum. By this method the owner of the place is kept in touch with his account from week to week, which has resulted in prompt action on his part in cutting down all waste of water.

Private meters where the consumption does not exceed 100,000 cubic feet per quarter are read nine times a year. If the consumption shows an extraordinary use of water an examination is made for leaks, and if any are found the responsible party is notified.

Detector meters are read monthly, and if any show registration an investigation is immediately made as to the cause, and explanation demanded.

District meters in municipal institutions are read monthly, and the responsible department is notified if leaks or wastes are found.

District meters installed on service pipes supplying private residences are read at frequent intervals, averaging about nine times a year. Where the rate of consumption is much in excess of the proportion based upon the minimum payment in advance, special reading cards are made out and these premises kept under constant observation. Where leaks are found in metered premises the occupant and agents (if they have a request on file for such information) are notified, and in case no attention is paid to such warnings, and the leaks are large enough to justify such action, the supply is discontinued until the proper repairs are made. For convenience in handling such accounts houses are divided into three classes: First, large houses where considerable water is required. In such cases, if abnormal use of water is indicated by the meter, the occupant is notified by card to that effect and the case is dropped. Second, medium-sized houses. If the consumption is found to be excessive a notice is sent to

that effect, and if after a reasonable time no change is observed an examination is made, and if leaks are found the occupants is again notified that if this condition is allowed to continue large bills will naturally result. Third, small houses which are occupied in many instances by irresponsible parties. In such cases, where an extraordinary wastage of water is found, the supply is discontinued after one notice has been served.

In the first two classes the notices are generally met with prompt action on the part of the occupant or agent; but in the latter class considerable trouble is experienced, as the principal waste can be traced to these small houses.

INSTALLATION OF METERS.

The work during the year consisted mainly in metering the new services in the territory covered in previous years, in the second, third, and fourth high-service areas. On this account the work was necessarily considerably scattered, the force being rarely in one place more than three days at a time. On account of the report of a large wastage or leakage of water, meters were installed on both sides of Four-and-a-half Street SW., from H to P Streets, and on both sides of all streets between Third and Four-and-a-half, D and P Streets SW.

North of Florida Avenue, with few exceptions, all the services are of lead and were easily located, greatly facilitating the work. In the older parts of the city, however, considerable trouble was experienced in finding the services, which were for the most part wrought iron and in such condition that at least 20 per cent of them had to be repaired before meters could be installed.

The following shows the average cost of installing a meter:

Meter.....	\$6. 00
Material.....	3. 97
Labor.....	2. 64
Total.....	12. 61

The following shows the force engaged on installation:

In charge.....	¹ 1
Plumbers.....	3
Laborers.....	9
2-horse wagon.....	1
1-horse wagons.....	3

The following additional work was performed in connection with the installation of meters: Adjusting meters to proper grade, adjusting stopcock boxes to grade, removing meters for test, etc., reporting cuts in improved pavements, repairing minor leaks on service pipes and setting of temporary meters, etc.

REVENUES.

The table of comparative revenues shows an increase over the previous year of \$33,269.34.

TABLES.

- Table I shows statement of collections.
- Table II shows comparative statement of revenues.
- Table III shows number of water meters in service.
- Table IV shows number of water meters repaired.
- Table V shows consumption of water in private residences.
- Table VI shows consumption of water in buildings owned and controlled by the District of Columbia.
- Table VII shows consumption of water in premises which receive a free allowance.
- Table VIII shows consumption of water in business establishments.
- Table IX shows general information.
- Table X shows schedule rating of various premises.

CARD-RECORD SYSTEM.

There are about 350,000 office records kept under the card system.

¹ As this man also has charge of taking out and resetting meters for test and repairs and repairs to service pipes, only half of his time and the cost of the horse and wagon used by him is properly chargeable to installation.

WATER RATES.

There has been no change in the water rates during the past year.

The rate for domestic purposes is charged according to stories and front feet. On all tenements two stories high, with a front width of 16 feet or less, \$4.50 per annum. For each additional front foot, or fraction thereof greater than one-half, 30 cents.

For each additional story or part thereof, one-third of the charges as computed above.

Business premises are rated according to their size, class, and volume of business, and rate from \$1 to \$25. If the flat rate on a business establishment reaches \$25 or more the owner or occupant is required to install a water meter at his own expense.

The meter rate is 3 cents per 100 cubic feet with a minimum charge of \$4.50 per annum, which allows the use of 15,000 cubic feet, or 112,200 gallons; water used in excess of this amount is charged for at the above rate.

CONDITION OF WORK.

There was a large increase in business over that of the previous year, but notwithstanding this fact the work was practically up to date at the close of the year.

This result was made possible by the faithful cooperation of the employees, their readiness to meet the exigencies of the service by frequently working after hours, for which I now take occasion to express my appreciation.

Very respectfully, your obedient servant,

GEO. W. WALLACE,
Water Registrar.

The SUPERINTENDENT WATER DEPARTMENT.

TABLE I.—Statement of collections.

Water rents:			
Schedule.....	\$289, 240. 60		
District meters.....	61, 656. 82		
Private meters.....	166, 511. 27		
			\$517, 408. 69
Water-main assessments.....			101, 987. 53
Taps and stopcocks.....			8, 924. 35
Building purposes.....	\$4, 173. 09		
Sale of old material, etc.....	960. 04		
			5, 133. 13
			633, 453. 70

TABLE II.—Comparative statement of revenues.

Fiscal year.	Water rents.	Water-main assessment.	Taps and stopcocks.	Miscellaneous.	Total revenues.
1898.....	\$264, 884. 48	\$58, 152. 56	\$6, 910. 65	\$1, 104. 42	\$330, 952. 11
1899.....	276, 065. 54	62, 937. 43	6, 327. 00	1, 545. 15	346, 875. 12
1900.....	286, 257. 63	53, 420. 70	5, 208. 15	4, 452. 53	349, 339. 01
1901.....	303, 557. 19	56, 359. 72	6, 140. 85	3, 064. 39	369, 122. 15
1902.....	318, 404. 39	65, 962. 47	6, 368. 16	4, 659. 00	395, 394. 02
1903.....	326, 789. 26	70, 880. 32	6, 787. 77	3, 628. 18	408, 085. 53
1904.....	340, 131. 72	51, 575. 87	6, 522. 67	2, 839. 66	401, 069. 92
1905.....	349, 264. 26	32, 192. 77	8, 603. 80	5, 737. 69	395, 798. 52
1906.....	359, 699. 35	34, 352. 70	9, 100. 00	2, 633. 85	405, 785. 90
1907.....	466, 452. 19	51, 313. 97	8, 487. 10	8, 697. 66	535, 950. 92
1908.....	477, 306. 64	57, 462. 39	8, 688. 10	4, 050. 32	547, 507. 95
1909.....	498, 598. 31	57, 654. 06	10, 674. 15	5, 826. 22	572, 752. 74
1910.....	505, 488. 52	76, 905. 15	11, 794. 78	5, 995. 91	600, 184. 36
1911.....	517, 408. 69	101, 987. 53	8, 924. 35	5, 133. 13	633, 453. 70
1912 ¹	528, 000. 00	100, 000. 00	9, 000. 00	5, 000. 00	642, 000. 00
1913 ¹	539, 000. 00	100, 000. 00	9, 000. 00	5, 000. 00	653, 000. 00

¹ Estimated.

Cash repayments:		
Salaries, 1910.....	\$44.09	
Salaries, 1911.....	12.30	
High service, 1911.....	2,283.23	
		\$2,339.67
Cash transfer repayments:		
Salaries, 1911.....	1,935.91	
High service, 1911.....	90,244.91	
		92,180.82
Receipts for water rents, etc.....		633,453.70
		727,974.19

TABLE III.—Water meters.

	$\frac{1}{2}$ -in.	$\frac{3}{8}$ -in.	$\frac{1}{2}$ -in.	1-in.	1 $\frac{1}{2}$ and 1 $\frac{3}{4}$ in.	2 and 2 $\frac{1}{2}$ in.	3-in.	4-in.	6-in.	8-in.	Total.
American.....		171	5	6	1						183
Crown.....		6	14	37	29	13	9	1	2		111
Davies disk.....			1								1
Empire.....		52			1		2	1			56
Enarc.....			9	10	11	3					33
Gem.....						24	18	7	1		50
Eureka.....								1			1
Hersey.....			258	22	61	18	6		1		366
Hersey, Model F.....	10,857						5	5			10,857
Hersey detector.....							5	1	6	2	18
Hersey rotary.....								1			1
Hersey torrent.....						2		1			3
Keystone (Pittsburgh).....		172	32	42	26	19	19	1			311
Keystone, Model W.....		100									100
King.....		173									173
Lambert.....		1,182	152	92	80	35	9	6	1		1,557
Nash.....	2	153	540	504	281	124	30	9	2		1,645
Niagara.....		1	16	11	23	11					62
Standard.....					6	1					7
Thomson.....	1	2	64	69	47	32	5	2			222
Trident.....		2,576	29	46	55	7	2				2,715
Trident compound.....							2	1			3
Trident crest.....							5	4			9
Union.....			31	39	9	9	1	1	1		91
Worthington.....		277	2	8	3	11	8	3			312
Worthington, Model D.....		50									50
Total.....	3	15,772	1,153	886	633	309	121	44	14	2	18,937
Registers.....											5
Total meters and registers.....											18,942

Number of meters installed to June 30, 1910.....	15,940
Number of meters installed in private residences by District of Columbia, 1910-11.....	3,060
Number of meters installed by private parties, 1910-11.....	124
Total.....	19,124
District meters abandoned, 1910-11.....	12
Private meters abandoned, 1910-11.....	175
	187
Total number of meters in service June 30, 1911.....	18,937
Registers.....	5
Total.....	18,942
Water services, total number of.....	65,215
Water services metered.....	18,942
Water services unmetered.....	46,273
Percentage of services metered.....	29

TABLE IV.—*Meters repaired.*

	$\frac{1}{8}$ -in.	$\frac{1}{4}$ -in.	1-in.	1 $\frac{1}{2}$ -in.	2-in.	3-in.	4-in.	6-in.	Total.
Meters repaired.....	618	126	94	43	32	7	8	1	929
Abutments.....	2	1							3
Bottom case.....	3								3
Bottom head.....		1							1
Bridge.....			1						1
Center pinion and crank shaft.....		1	1						2
Center pinion and set screw.....		1							1
Control.....	4	2	3		1				10
Dial plate.....	1	4		1		1			7
Disk.....	294	26	17	4	1		1		343
Disk, damaged by hot water.....	22	1							23
Disk chamber.....	2								2
Disk shaft.....	3	35	30	7	4				79
Flange bolts.....	10	10		1					21
Gaskets.....	40	3							43
Gears.....	63	15	7	9	1	2	1	2	100
Intermediate screws.....		4		4		1			9
Intermediate shaft.....	1	1	2	1	3				8
Registers.....	18								18
Register box.....		3	2	3	1				9
Strainers.....	157								157
Top case.....	3								3
Train gear, intermediate.....	11	38	44	7	11		2		113
Total parts.....	633	146	107	37	22	4	2	2	956
Cleaned.....	195	21	14	18	12	5	4		209

Number of meters in service, including registers..... 18,942

Cost of labor and material for maintenance..... \$4,171.42

Average cost per meter for maintenance..... \$0.22

TABLE V.—*Showing the number of houses that have paid the minimum rate of \$4.50, those that have exceeded the amount allowed under the payment of this amount, and a comparison between the amount of water allowed and the amount of water used, and the amount paid under the flat rate and meter system.*

	Houses.	Me- ters.	Amount of water actually used.	Amount of water allowed per annum under pay- ment of \$4.50.	Differ- ence.	Amount used in excess.	Paid meter rate 1911.	Paid schedule rate 1908 to 1910.
			<i>Cubic feet.</i>	<i>Cubic feet.</i>	<i>Cubic feet.</i>	<i>Cubic feet.</i>		
Paid minimum rate.....	10,486	10,486	73,379,600	154,370,000	80,990,400		\$47,187.00	\$66,474.55
Paid fractional mini- mum rate.....	273	273	1,606,100	2,823,800	1,217,700		847.14	1,774.50
Paid in excess of the mini- mum rate.....	1,686	1,686	39,674,900	25,290,000		14,384,900	11,902.47	13,498.00
Paid in excess of frac- tional minimum rate.....	109	109	1,583,900	1,333,900		250,000	475.17	708.50
Two or more houses on one service, minimum rate.....	127	54	933,900	1,905,000	971,100		571.50	591.82
Two or more houses on one service, fractional.....	4	2	26,100	48,300	22,200		14.50	26.00
Two or more houses on one service, excess.....	47	21	1,238,300	729,300		509,000	371.99	219.96
Premises on which an allowance was made for underground leaks.....	50	49	1,575,000	809,200	765,800		287.55	353.00
Vacated before payment could be enforced.....	2	2	29,000					13.36
No payment for fiscal year 1911, vacant.....	105	105	52,700					682.50
Total.....	12,889	12,787	120,099,500	187,309,500	83,967,200	15,143,900	61,657.32	\$4,342.19

Meters in operation.....	12,787
Meters installed during fiscal year 1910, to take effect July 1, 1911.....	3,060
Total meters.....	15,847
Premises.....	12,889
Amount paid.....	\$61,657.32
Average payment for each.....	\$4.79
Rate (considering only the houses occupied during the full year):	
Schedule.....	\$6.54
Meter.....	4.86
Difference.....	1.68

TABLE VI.—*Meters installed in various buildings owned and controlled by the District government.*

Class of building.	Annual consumption.	Premises.	Meters.
	<i>Cubic feet.</i>		
Police stations.....	2,241,700	11	11
Engine and truck houses.....	2,406,800	27	29
Schools and annexes.....	18,337,200	94	107
Work house grounds.....	1,067,800	1	7
District of Columbia stables.....	344,900	2	2
District of Columbia morgue.....	14,900	1	1
Cement warehouse.....	7,700	1	1
Parking commission stables.....	105,500	1	1
Ambulance, Board of Charities.....	24,200	1	1
Lodging house.....	37,600	1	1
Hydrant, Jewett Street and Wisconsin Avenue.....	5,400	1	1
Lodge house, Brightwood reservoir.....	32,100	1	1
Public drinking fountain.....	3,800	1	1
Zoological Park.....	3,948,200	1	1
Total.....	28,577,800	152	165

TABLE VII.—*Premises which receive an allowance of free water.*

	Num-ber.	Consump-tion.	Allowance.	Ex-ceeded.	Paid.	Meters.
		<i>Cubic feet.</i>	<i>Cubic feet.</i>			
Churches.....	77	3,039,700	5,080,220	10	\$154.71	82
Orphan asylums.....	7	1,670,100	3,916,100	1	54.00	11
Hospitals.....	11	8,814,500	3,256,300	5	765.48	14
Homes.....	17	2,993,700	3,334,845	6	103.69	20
Schools.....	8	2,126,000	3,485,500	3	121.74	9
Neighborhood houses.....	2	105,500	526,900			3
Total.....	122	18,749,500	19,945,000	25	1,199.62	139

Amount of water consumed.....	Cubic feet.
Amount of water used in excess of allowance.....	18,749,500
Total amount allowed free.....	3,998,750
	14,750,750

TABLE VIII.—Miscellaneous business establishments under meter, and amount of water consumed for the fiscal year 1911.

Miscellaneous business establishments.	15,000 cubic feet or less.		15,000 to 100,000 cubic feet.		100,000 to 1,000,000 cubic feet.		1,000,000 cubic feet and over.		Total premises of each class.
	Premises.	Cubic feet.	Premises.	Cubic feet.	Premises.	Cubic feet.	Premises.	Cubic feet.	
Apartment houses.....	32	347,500	344	19,699,800	310	68,549,200	9	13,592,300	695
Art gallery.....			1	24,700					1
Bakeries.....			23	1,055,400	7	1,317,700	2	2,260,900	32
Bathrooms.....									4
Barber shops.....	1	12,500	3	90,400	1	183,600			5
Blairstown.....	2	24,000	3	95,600					4
Bottling works.....			10	636,500					5
Bowling alley.....			1	123,900	7	2,420,500	1	1,392,600	18
Breweries.....									1
Cemeteries.....	1	5,700	4	230,300			4	14,241,200	4
Club houses.....	8	73,300	11	563,900	3	618,700			8
Coal yards.....	2	6,900	10	431,100	8	1,524,100	2	5,989,900	29
Dairies.....			6	273,800	1	390,700			13
Department stores.....			2	186,300	8	5,396,600			14
Drug stores.....			10	556,600	4	2,420,500	2	7,627,900	8
Dye works.....	1	5,200	15	742,900	8	1,403,600			18
Florists.....	1	7,600	13	727,300	3	459,000			19
Garages.....	4	37,500	9	458,600	7	1,599,000	21	2,877,200	21
Gas works.....					12	2,684,200	2		27
Halls.....	4	43,100	13	749,800	6	4,113,500			6
Homes.....	1	11,000	3	145,400	2	553,300			19
Hospital.....					3	454,200			7
Hotels.....			24	1,542,600	1	297,900			1
Ice yards and plants.....			1	91,000	52	15,670,800	10	34,054,600	86
Lumber.....	1	9,900	4	272,200	2	1,918,800	6	44,251,200	9
Lumber and saw mills.....			8	274,600	9	4,921,500	8	15,935,800	22
Lunch rooms.....	3	38,800	25	1,428,700	3	997,200			11
Machine shops.....	2	12,500	7	410,100	10	1,939,500			33
Markets.....			11	129,100	1	119,200			10
Miscellaneous.....	9	53,900	24	964,900	16	2,454,300	1	11,967,200	38
Office buildings.....	21	180,800	120	5,799,500	7	1,273,700			28
Plumber shops.....			2	41,100	79	22,112,800	8	12,152,000	40
Pool rooms.....			2	64,100					2
Printing offices.....	2	13,200	9	505,100	1	276,600			3
Railroads, offices and yards.....					7	2,118,700			18
Saloons and restaurants.....	3	14,700	292	16,329,000	3	818,500	3	94,070,300	9
Schools and seminaries.....	9	84,500	80	11,987,400	3	11,987,400	1	1,847,300	382
Scientific institutes.....	2	27,500	25	6,465,600			3	4,219,000	64
Small manufactories.....			32	1,531,200					2
Stables.....	12	93,200	72	3,974,300	26	6,601,000	2	11,258,500	72
Steamboat offices and wharves.....	14	121,000	3	227,700	26	3,739,000			118
					4	1,522,000			7

Stoneyards	2	13,800	2	110,900	1	138,300	1	1,038,900	5
Stores (miscellaneous)	55	335,300	106	4,076,800	18	3,782,600	1	7,634,200	180
Street railway stations and power plants	6	42,900	3	199,800	12	4,116,300	4	7,634,200	25
Telephone and telegraph exchange					1	348,000			1
Theaters	1	10,600	7	419,700	9	3,103,800			17
Turkish baths			1	31,900	1	777,300			2
Undertakers			3	73,000	1	134,700			4
Warehouses	6	27,700	15	685,500	2	514,900	1	1,217,100	24
Fire services	18	600,900							18
Private residences (private meters)	8	51,400							222
Vacant, no consumption	47		84	1,889,400	109	3,610,200	21	4,117,900	47
Total	275	1,767,200	1,379	69,661,400	897	196,570,600	91	291,746,000	2,644

Total number of cubic feet consumed.....

Total value (at 3 cents per 100 cubic feet).....

559,745,200
\$167,923.56

NOTE.—While this quantity of water was consumed during the fiscal year, the last quarterly payment goes into the revenue for the next fiscal year.

TABLE IX.—General information.

Taps inserted in water mains:

For new services.....	2, 133
Water department, general.....	228
Total.....	2, 361
Number of new services.....	1, 972
Water services, total to date.....	65, 215
Percentage of services metered.....	29

	In use June 30, 1910.	Installed 1911.	Abandoned 1911.	Total.
District meters in private residences.....	12, 799	3, 060	12	15, 847
District meters in municipal buildings.....	165			165
Private meters.....	2, 842	124	175	2, 791
Private meters in charitable institutions.....	129	10		139
Total in use June 30, 1911.....				18, 942

Average cost of installing a water meter by the department.....	¹ \$12. 61
Average cost of repairs to meters.....	. 22
Average cost of reading meters.....	. 25
Average cost of computing meter accounts and making bills.....	. 25
Average payment for premises in which meters were installed by the department.....	4. 78
Average payment for premises in which private meters were installed...	56. 45

Water supply measured by meter:

District meters in private residences.....	cubic feet..	120, 099, 500
District meters in municipal buildings.....	do....	28, 577, 800
Private meters.....	do....	559, 745, 200
Private meters in charitable institutions.....	do....	18, 749, 500
Total.....	do....	727, 172, 000

Revenues:

Total revenue for metered water.....	\$228, 168. 09
Total revenue for flat-rate accounts.....	289, 240. 60
	517, 408. 69

TABLE X.

DOMESTIC PURPOSES.

Rate.	Number.	Amount.	Rate.	Number.	Amount.
\$3.50.....	4	\$14. 00	\$6.35.....	1	\$6. 35
4.25.....	7	29. 75	6.40.....	1, 147	7, 340. 80
4.50.....	17, 289	77, 800. 50	6.45.....	47	303. 15
4.80.....	2, 030	9, 747. 00	6.50.....	215	1, 397. 50
5.00.....	15	75. 00	6.55.....	1	6. 55
5.10.....	1, 570	8, 007. 00	6.60.....	95	627. 00
5.25.....	252	1, 323. 00	6.70.....	58	388. 60
5.35.....	2	10. 70	6.75.....	100	675. 00
5.40.....	633	3, 420. 20	6.80.....	1, 307	8, 887. 60
5.50.....	301	1, 655. 50	6.85.....	5	35. 25
5.55.....	52	288. 60	6.90.....	154	1, 062. 60
5.70.....	1, 480	8, 436. 00	7.00.....	63	441. 00
5.75.....	10	57. 50	7.05.....	18	126. 90
5.80.....	48	278. 40	7.10.....	48	340. 80
5.85.....	42	234. 10	7.15.....	26	185. 90
6.00.....	5, 528	21, 168. 00	7.20.....	760	5, 472. 00
6.10.....	39	237. 90	7.25.....	15	108. 75
6.15.....	30	159. 90	7.30.....	14	102. 20
6.25.....	17	106. 20	7.35.....	5	36. 75
6.30.....	274	1, 726. 20	7.40.....	35	251. 60

¹ Includes cost of meter, labor, and material.

TABLE X.—*Domestic purposes*—Continued.

Rate.	Number.	Amount.	Rate.	Number.	Amount.
\$7.45.	10	\$74.50	\$11.70.	46	\$538.20
7.50.	552	4,140.00	11.75.	8	94.00
7.55.	28	211.40	11.80.	15	177.00
7.60.	1,188	9,028.20	11.85.	1	11.85
7.65.	17	130.05	11.90.	23	273.70
7.70.	68	523.60	11.95.	1	11.95
7.75.	6	46.50	12.00.	242	2,904.00
7.80.	83	647.40	12.05.	5	60.25
7.85.	4	31.40	12.10.	7	84.70
7.90.	16	126.40	12.15.	1	12.15
7.95.	19	151.05	12.20.	37	451.40
8.00.	601	4,808.00	12.25.	6	73.50
8.05.	2	16.10	12.30.	14	172.20
8.10.	91	737.10	12.40.	19	235.60
8.15.	2	16.30	12.45.	1	12.45
8.20.	16	131.20	12.50.	75	937.50
8.25.	30	247.50	12.60.	69	869.40
8.30.	28	232.40	12.65.	3	37.95
8.35.	43	359.05	12.70.	8	101.60
8.40.	379	3,183.60	12.75.	6	76.50
8.45.	4	33.80	12.80.	15	192.00
8.50.	363	3,085.50	12.85.	1	12.85
8.55.	7	59.85	12.90.	12	154.80
8.60.	20	172.00	12.95.	3	38.85
8.70.	139	1,209.30	13.00.	41	533.00
8.75.	27	235.25	13.10.	4	52.40
8.80.	167	1,409.60	13.15.	1	13.15
8.85.	9	79.65	13.20.	30	396.00
8.90.	11	97.90	13.25.	7	92.75
8.95.	4	35.80	13.30.	2	26.60
9.00.	386	3,484.00	13.35.	6	80.10
9.05.	2	18.10	13.40.	11	147.40
9.10.	23	209.30	13.45.	1	13.45
9.15.	16	146.40	13.50.	48	648.00
9.20.	159	1,402.80	13.55.	2	27.10
9.25.	9	83.25	13.60.	19	258.40
9.30.	44	409.20	13.65.	2	27.30
9.35.	3	28.05	13.70.	9	123.30
9.40.	22	206.80	13.75.	5	68.70
9.45.	7	66.15	13.80.	22	303.65
9.50.	645	6,127.50	13.85.	1	13.80
9.55.	6	57.30	13.90.	4	55.65
9.60.	182	1,747.20	13.95.	3	41.80
9.63.	1	9.63	14.00.	33	462.05
9.65.	1	9.65	14.10.	3	42.30
9.70.	4	38.80	14.15.	3	42.40
9.75.	19	185.25	14.20.	9	127.85
9.80.	32	313.60	14.25.	7	99.70
9.85.	5	49.25	14.30.	3	42.95
9.90.	47	465.30	14.35.	2	28.70
9.95.	10	99.50	14.40.	34	489.60
10.00.	246	2,400.00	14.45.	1	14.40
10.05.	5	50.25	14.50.	41	594.55
10.10.	24	242.40	14.55.	1	14.50
10.15.	2	20.30	14.60.	11	160.65
10.20.	51	520.20	14.70.	11	161.70
10.25.	18	184.50	14.80.	10	148.00
10.30.	6	61.80	14.85.	1	14.85
10.35.	8	82.80	14.90.	3	44.70
10.40.	57	562.80	14.95.	3	44.85
10.50.	232	2,436.00	15.00.	42	630.00
10.55.	3	31.65	15.05.	1	15.05
10.60.	33	349.80	15.10.	3	45.30
10.65.	5	53.25	15.15.	3	45.45
10.70.	59	581.30	15.20.	10	152.00
10.75.	12	129.00	15.30.	3	45.90
10.80.	51	550.80	15.35.	2	30.70
10.85.	3	32.65	15.40.	2	30.80
10.90.	3	32.70	15.45.	1	15.45
10.95.	3	32.85	15.50.	15	232.50
11.00.	179	1,969.00	15.55.	1	15.55
11.05.	1	11.05	15.60.	25	390.00
11.10.	30	333.00	15.70.	7	31.40
11.15.	1	11.15	15.75.	1	15.75
11.20.	24	268.80	15.80.	4	63.20
11.25.	10	112.50	15.90.	5	79.50
11.30.	24	271.20	15.95.	1	15.95
11.40.	55	627.00	16.00.	18	288.00
11.45.	8	91.60	16.10.	6	80.50
11.50.	136	1,564.00	16.15.	1	16.15
11.55.	3	34.65	16.20.	8	129.60
11.60.	30	348.00	16.25.	1	16.25

TABLE X.—*Domestic purposes*—Continued.

Rate.	Number.	Amount.	Rate.	Number.	Amount.
\$16.30.....	3	\$48.90	\$22.40.....	1	\$22.40
16.35.....	3	49.05	22.50.....	8	180.00
16.40.....	7	114.80	22.55.....	1	22.55
16.50.....	14	231.00	22.60.....	1	22.60
16.60.....	6	99.60	22.70.....	1	22.70
16.65.....	1	16.65	22.80.....	3	68.40
16.75.....	2	33.50	23.00.....	4	92.00
16.80.....	7	117.60	23.20.....	1	23.20
16.90.....	2	33.80	23.35.....	1	23.35
16.95.....	3	50.85	23.40.....	1	23.40
17.00.....	20	340.00	23.50.....	1	23.50
17.10.....	5	85.50	23.55.....	1	23.55
17.20.....	3	51.60	23.60.....	1	23.60
17.25.....	3	51.75	23.70.....	1	23.70
17.35.....	1	17.35	24.00.....	6	144.00
17.40.....	6	104.40	24.40.....	2	48.80
17.50.....	13	227.50	24.50.....	14	343.00
17.60.....	6	105.60	24.60.....	3	73.80
17.70.....	2	35.40	24.80.....	4	99.20
17.80.....	2	35.60	24.90.....	1	24.90
17.85.....	1	17.85	25.00.....	2	50.00
17.90.....	1	17.90	25.25.....	2	50.50
18.00.....	10	180.00	25.95.....	1	25.95
18.10.....	1	18.10	26.00.....	4	104.00
18.15.....	1	18.15	26.25.....	1	26.25
18.30.....	1	18.30	26.40.....	1	26.40
18.40.....	1	18.40	26.50.....	3	79.50
18.45.....	1	18.45	27.50.....	1	27.50
18.50.....	9	166.50	28.00.....	2	56.00
18.60.....	2	37.20	28.50.....	1	28.50
18.70.....	1	18.70	28.80.....	2	57.60
18.80.....	3	56.40	29.00.....	1	29.00
18.90.....	3	56.70	29.40.....	2	58.80
19.00.....	15	285.00	29.50.....	1	29.50
19.10.....	2	38.20	30.00.....	1	30.00
19.20.....	2	38.40	30.50.....	1	30.50
19.25.....	2	38.50	31.00.....	1	31.00
19.40.....	2	38.80	31.50.....	2	63.00
19.45.....	1	19.45	32.00.....	2	64.00
19.50.....	13	253.50	32.50.....	2	65.00
19.60.....	5	98.00	33.00.....	3	99.00
19.70.....	1	19.70	33.25.....	1	33.25
19.80.....	2	39.60	33.75.....	1	33.75
19.85.....	1	19.85	34.00.....	1	34.00
20.00.....	4	80.00	34.50.....	1	34.50
20.10.....	3	60.30	34.80.....	1	34.80
20.25.....	1	20.25	35.50.....	1	35.50
20.40.....	5	102.00	36.00.....	1	36.00
20.50.....	4	82.00	37.20.....	1	37.20
20.70.....	4	82.80	37.50.....	1	37.50
20.75.....	1	20.75	38.00.....	1	38.00
21.00.....	11	231.00	38.60.....	1	38.60
21.50.....	4	86.00	39.30.....	1	39.30
21.60.....	2	43.20	40.05.....	1	40.05
21.75.....	1	21.75	40.25.....	1	40.25
21.90.....	2	43.80	42.25.....	1	42.25
22.00.....	0	198.00	47.40.....	1	47.40
22.20.....	2	44.40			
22.25.....	1	22.25			
			Total.....	42, 135	246, 055.34

NOTE.—The above amounts include business conditions in connection with domestic purposes, showing the full charge against each service.

PREMISES HAVING BUSINESS CONDITIONS ONLY WHICH ARE CHARGED FOR WATER RENT UNDER THE FLAT RATE OR SCHEDULE SYSTEM.

Number.	Character.	Amount.	Number.	Character.	Amount.
1,610	Apartments.....	\$16,952.20	49	Offices.....	\$288.50
1	Auction house.....	15.00	7	Oyster houses.....	38.00
36	Barber shops.....	267.00	23	Pool rooms.....	134.50
10	Barrooms.....	201.00	5	Printing houses.....	63.00
2	Bakeries.....	15.50	1	Photo gallery.....	9.00
1	Bindery.....	6.00	642	Stores.....	3,659.05
2	Bowling alleys.....	10.00	174	Shops.....	732.75
4	Coal yards.....	22.25	336	Stables.....	1,079.75
1	Club.....	12.00	6	Street washers.....	21.00
1	Dairy.....	6.00	3	Studios.....	11.50
1	Dye house.....	13.75	3	Stoneyards.....	15.00
46	Eating houses.....	293.00	1	Smokehouse.....	3.00
2	Engines.....	26.00	2	Schools.....	12.00
2	Florists.....	12.00	1	Tennis court.....	5.00
4	Fish houses.....	16.00	23	Theaters.....	148.75
1	Gas pumping station.....	6.00	1	Tailor.....	5.00
4	Halls.....	4.00	2	Undertakers.....	15.00
1	Hairdressing parlor.....	51.50	34	Warehouses.....	176.00
1	Ice house.....	12.00	2	Wood yards.....	27.75
19	Laundries.....	3.00	2,501	Fractional payments.....	16,767.01
10	Manufactories.....	103.50			
183	Office buildings.....	69.00			
		1,870.50		Total.....	43,198.76

REPORT OF THE SUPERINTENDENT OF SEWERS.

WASHINGTON, D. C., *September 15, 1911.*

CAPTAIN: I have the honor to submit the following report for the fiscal year ending June 30, 1911:

DIVISION A.—*Drainage studies, plans, and engineering data.*

The plans, surveys and estimates for the ordinary sewer extensions during the year covered every section of the District. In addition to special projects involving studies for new outlets, plans for local sewerage were developed in the upper Potomac areas, in Rock Creek Valley, and along both banks of the Anacostia River where the work was carried into areas north of Bunker Hill Road and to Kenilworth.

Advance studies for the extensions of the main interceptors of the sewage-disposal system in these three drainage districts were continued, and final plans in detail of several sections, in whole or in part, completed.

Work was in progress on plans for the Poplar Point substation, which will receive the drainage from the Anacostia main intercepting sewer and deliver same to the outfall sewer at Poplar Point, where this substation will be located. These plans propose electrically driven pumping units, automatically controlled, with current furnished from the main sewerage pumping station and transmitted by submarine cables under the Anacostia River to Poplar Point. The installation provides for three-wire twin cables to transmit for the first few years, as a single circuit, sufficient power in 220-volt direct current (generated now at the sewerage pumping station). Later, when the requirements of the service demand, alternating high-tension current up to the maximum estimated load of 150 horsepower may be transmitted by one of these cables, with one in reserve, a necessary future precaution, but not immediately required. As at least six years will be required to complete the main interceptor, and the increase in quantity of sewage to be pumped will not be rapid, this arrangement, utilizing existing equipment and providing for a gradual change over to current of higher efficiency, should prove satisfactory and economical. The submarine cable has been contracted for and will be laid as soon as delivered, early in the next fiscal year. Plans in preparation for this substation provide for screens, settling basins, skimming tank, and incinerating plant for consuming the combustible wastes, the heat from the latter to be utilized for heating the building. While this is a rather small station, it is located on the margin of the proposed Anacostia Valley park system, and special attention is being given to every detail with a view of securing a plant as highly efficient and as satisfactory as the main sewerage pumping station.

RAINFALL AND RUN-OFF.

The rainfall record was extended to 20 stations during the year, covering a large portion of the District, and the observations systematically obtained and recorded. Also the record of the automatic gauges on run-off were obtained throughout the year and partly worked up. There were few storms of unusual precipitation and these were generally small in area. The record of the storm of greatest area is given as follows:

Unusual storm, showing rates at different stations.

Time.	Station A.	Station B.	Station C.	Maximum rate (inches per hour).		
				Station A.	Station B.	Station C.
	<i>Inches.</i>	<i>Inches.</i>	<i>Inches.</i>	<i>Inches.</i>	<i>Inches.</i>	<i>Inches.</i>
6.50 p. m.	0.09	0.10	0.22	1.08	1.20	2.64
7.00 p. m. ....	.24	.38	.79	.96	1.52	3.16
7.10 p. m. ....	.38	.67	1.14	.91	1.71	2.74
7.20 p. m. ....	.52	.95	1.21	.89	1.63	2.08
7.30 p. m. ....	.69	1.12	1.21	.92	1.49	1.61
7.40 p. m. ....	.83	1.14	1.21	.90	1.24	1.32
7.50 p. m. ....	.99	1.14	1.21	.91	1.05	1.12
8.00 p. m.	1.12	1.14	1.21	.90	.91	.97

NOTE.—A, sewerage pumping station; B, boundary sewer gatehouse; C, Weather Bureau.

RIVER FLOW AND SEWAGE DILUTION.

The outfall of the sewage-disposal system at Grimes on the Potomac River was under constant observation throughout the year. Even under the more unfavorable influence of minimum river discharge, the condition of the waters in the vicinity of the outfall was excellent without exception. The following is a tabulation of the flow of the Potomac River at that point for each month in the year, the average discharge of the outfall, its ratio to the river flow, and the effective dilution obtained:

River flow and sewage dilution.

Months.	River discharge (second-feet).			Average pumpage (second- feet).	Ratio to river flow.	Effective dilution.
	Maximum.	Minimum.	Mean.			
July, 1910.	11,600	3,340	6,890	108	1:64	160:1
August, 1910.	3,870	1,900	2,520	104	1:24	60:1
September, 1910.	3,700	1,240	2,260	105	1:22	50:1
October, 1910.	2,660	1,790	2,000	106	1:19	50:1
November, 1910.	2,350	1,620	1,850	99	1:19	50:1
December, 1910.	3,160	1,400	2,360	106	1:22	50:1
January, 1911.	65,000	2,490	16,100	103	1:156	370:1
February, 1911.	74,750	7,430	13,900	97	1:143	280:1
March, 1911.	22,500	6,270	12,080	96	1:124	280:1
April, 1911.	64,250	8,650	18,870	98	1:192	420:1
May, 1911.	10,220	2,850	5,400	104	1:52	120:1
June, 1911.	9,170	3,250	4,600	105	1:44	100:1

Oxygen tests of the condition of the water within the dilution basin were carried on during a portion of the year, and the following table gives consecutive results of these tests for a period of three months in comparison with similar tests on samples of Potomac water taken simultaneously at a point a mile above the upper limits of the dilution basin. The river flow at the time samples were taken is also given, as well as the elevation and state of the tide.

Table of 17 consecutive tests of Potomac River water near sewage outfall and comparison with upper river water.

River flow (second-feet).	Tide.		Oxygen per cent saturation.	
	Elevation.	Flow.	Dilution basin.	Upper Potomac.
13,400	-0.5	Ebb.....	99	100
11,600	+0.1	Flood.....	93	95
8,150	-0.5	do.....	98	94
10,220	-1.6	Ebb.....	98	99
11,340	-1.4	do.....	99	100
7,670	-0.1	do.....	97	100
21,060	-1.8	do.....	99	99
21,060	-1.1	do.....	99	100
9,160	+0.3	do.....	92	95
44,500	+0.4	Flood.....	95	97
25,500	-1.1	do.....	97	100
22,500	-2.4	Ebb.....	91	100
21,900	-1.7	do.....	99	100
17,600	-0.7	do.....	95	100
13,750	-0.1	do.....	97	100
12,500	-0.5	Flood.....	92	99
12,200	-2.6	Ebb.....	98	97

NOTE.—These tests began late in fiscal year; record incomplete.

METROPOLITAN SYSTEM.

There was continued during the year, so far as other duties would permit, a study of the developing field conditions as to pollution of District streams by the discharge of raw sewage therein from the neighboring towns and villages of Maryland, which included the collection of data concerning same and its recording and mapping. In addition the study was continued of organization and the scope and form of legislation necessary to carry the proposed plans to effective execution. It is believed that the active cooperation of the Maryland State Board of Health has been secured on this work, and that a report containing the form of initial legislation to be recommended, for State and District, can be presented in the next fiscal year. The only considerable development of the Maryland sewerage during the year had been just over the District line in the valley of Rock Creek near Chevy Chase. The estimated town and village population of Maryland now contributing sewage to these streams is somewhat in excess of 10,000. It is estimated that five years will be required, with the present rate of appropriation, to complete the Rock Creek main interceptor and the Anacostia main interceptor within the limits of the District, and no sewage from the Maryland towns can be taken care of until these lines are completed.

DIVISION B.—Maps, records, and drafting.

On 638 engineer department files studies were made and 443 plats prepared, covering the extension of main and pipe sewers, the relaying of defective sewers, and the construction and reconstruction of catch basins. The official set of 50-foot scale sewer maps has been kept up to date and the area covered by these maps has been extended by the addition of 38 new sheets. The counter tracings of maps used by the permit clerk and the sewer division have been kept posted with current construction and 71 worn sheets replaced and 41 new sheets added. The 100-foot drainage study maps for suburban portions of the District have been extended over a considerable new area, and street extensions plotted on the 400-foot topographic maps.

Cards and plats showing the location of all proposed assessment sewers were furnished the assessor, and a card index begun of all new subdivisions. The work of reclassifying and indexing the sewer grade sheets, numbering about 8,700, was completed. Fifty old and worn grade sheets were replaced and 275 new grade sheets were made of the work of the year. A complete card index of all catch basins giving the data in detail for each basin was made.

The 3,000 existing premises without sewerage in the District were mapped and studies are being made and sewers recommended as rapidly as funds will permit with a view of remedying this insanitary condition. Meantime an immediate result is being attained, in cooperation with the health officer, by requiring many of these premises to now connect with the sewers which were constructed for their service.

With a view of keeping the sewerage system in pace with the development of the water-distribution system, a chart is kept posted showing all water mains ordered to be laid, as a guide to the development of drainage in new areas. The future paving schedules of the surface division are carefully considered and plans prepared where necessary for abandoning, reconstructing, or constructing sewers and their appurtenances in advance of street work. The surface division studies for establishing new street grades are examined as to their effect on the drainage and the future sewer extensions, and modifications recommended where required.

Changes were recommended in the plumbing regulations as to house connections with the sewers, and a cast-iron Y thimble designed for this purpose to be used in place of Y branches or tapping. This is believed to be an improvement over the old practice and at the same time effects a very considerable saving to the public. A garage trap, to be used between garages and public sewers for the purpose of intercepting all oil, gasoline, or other inflammable fluids where connection is desired with the sewers, was designed and its use recommended.

Computations have been partly completed for new discharge curves for trunk sewers.

Plans, estimates, and specifications were prepared for sewer construction under 28 contracts.

DIVISION C.—*Underground construction, public-service corporations.*

The work of supervision of all underground construction by the various public-service corporations, including the gas, electric, telephone, telegraph, and street-railway companies involved substantially the same amount of construction as during the preceding fiscal year. The total length of gas mains laid during the year aggregated 360,304 linear feet, and the total amount of duct laid during the year aggregated 454,129 linear feet. One thousand two hundred and seventy-nine applications for underground construction, 177 applications for vaults, 28 applications for area projections, 5 applications for coal chutes, and 7 applications for minor jobs were acted on. One thousand two hundred and eighty-one record sheets were made during the year, showing the detail location of each underground construction. The current work was kept reasonably up to date, and record sheets of previous years in arrears were completed. Much remains to be done in the way of plotting, mapping, and detail record of the work of many past years. The sewer division is charged with this very important work and endeavors to carry on the same with no special funds therefor, so that with the small force of regular employees and the limited time that can be devoted to this work it is very difficult to make satisfactory progress in perfecting these records. Detailed tables of the construction work located, supervised, and recorded, and the summaries of the extent of this construction work to date are given in the tables accompanying this report.

DIVISION D.—*Maintenance, sewerage system.*

The maintenance of the sewerage system included the flushing, cleaning, and repairing of (a) pipe sewers, length, 469.42 miles; (b) main sewers, length 122.78 miles; (c) storm-water receiving basins, 4,720; and (d) gravel catchment basins, 10.

Under the appropriation for "Cleaning and repairing, sewers and basins," the following work was performed:

Cleaning:

Main sewers cleaned.....	feet.....	300
Pipe sewers cleaned.....	do.....	161, 190
Pipe sewers flushed.....	do.....	5, 685, 423
Manholes flushed.....	number.....	15, 994
Sumps cleaned and inspected.....	do.....	530
Storm-water receiving basins flushed.....	do.....	11, 950
Basins cleaned.....	do.....	60, 379
Basin outlets cleaned.....	do.....	35
Sludge removed—		
Pipe sewers.....	cubic feet.....	3, 538
Storm-water receiving basins.....	do.....	166, 428
Sediment chamber, sewerage pumping station.....	do.....	58, 131
Screens, sewerage pumping station.....	pounds.....	833, 617

Inspection and repairs:

Main sewers—

Main sewers inspected.....	miles.....	122. 78
House connections inspected and repaired.....	number.....	195

Inspection and repairs—Continued.

Pipe sewers—		
Pipe sewers inspected.....	miles..	469. 42
Pipe sewers relaid, including basin connections.....	feet..	711
Settlements refilled.....	number..	6
Manholes reconstructed.....	do.....	11
Manholes adjusted and repaired.....	do.....	44
Manholes abandoned.....	do.....	7
Manhole frames replaced.....	do.....	112
Manhole covers replaced.....	do.....	168
Basins—		
Reconstructed.....	do.....	38
Repaired.....	do.....	90
Abandoned.....	do.....	20
Alley grates replaced.....	do.....	14
Alley frames replaced.....	do.....	13
Cost:		
Cleaning and inspection—		
Inspecting main sewers.....		\$1, 404. 64
Inspecting and flushing pipe sewers.....		2, 993. 67
Cleaning main sewers.....		173. 21
Cleaning pipe sewers.....		5, 233. 99
Cleaning catchment basins.....		17, 034. 37
Cleaning and inspecting sumps, gates, and regulators.....		2, 224. 44
Repairing—		
Main sewers—		
Fifth Street trunk sewer.....	\$211. 93	
Fourteenth Street trunk sewer.....	581. 77	
Tiber sewer.....	5, 824. 75	
		6, 618. 45
Pipe sewers and basin connections.....		2, 076. 71
Reconnecting and abandoning pipe sewers.....		1, 032. 03
Filling settlements over sewers.....		16. 43
Reconstructing basins.....		1, 868. 78
Repairing and adjusting basins.....		562. 26
Abandoning basins.....		65. 70
Replacing basin grates and frames.....		216. 63
Reconstructing manholes.....		866. 10
Adjusting and repairing manholes.....		321. 22
Abandoning manholes.....		53. 59
Replacing manhole frames and covers.....		1, 147. 50
Miscellaneous repairs.....		411. 46

DIVISION E.—Operation and maintenance, sewage-disposal system.

The work of this division includes the operation and maintenance of the sewerage pumping station and of the sewage-disposal system, the management of shops, stores, yards, and floating equipment, as well as the construction and installation of mechanical apparatus.

Sewerage pumping station.—The sewerage pumping station was operated without interruption to the service throughout the year, taking the sewage from substantially the entire District and delivering the same to the outfall. The entire storm-water discharge from the low area was also handled and the fixed hydraulic levels on all services maintained. The total quantity handled by the sewage pumps was more than 44,300,000,000 gallons, and the total handled by the storm-water pumps was nearly 700,000,000 gallons.

The following tabulation shows the quantities pumped each month:

Table showing total pumpage for each month of fiscal year.

Month.	Sewage.	Storm water.
	<i>Gallons.</i>	<i>Gallons.</i>
July, 1910.....	2,169,530,000	72,600,000
August, 1910.....	2,089,130,000	28,420,000
September, 1910.....	2,041,200,000	36,130,000
October, 1910.....	2,129,330,000	101,280,000
November, 1910.....	1,924,560,000	55,410,000
December, 1910.....	2,129,330,000	64,170,000
January, 1911.....	2,069,100,000	63,980,000
February, 1911.....	1,774,500,000	37,680,000
March, 1911.....	2,003,480,000	49,100,000
April, 1911.....	1,905,150,000	62,540,000
May, 1911.....	2,089,130,000	15,150,000
June, 1911.....	2,041,200,000	88,580,000

Eight million six hundred and thirty-two thousand nine hundred pounds of coal were consumed, and there were used 1,538 gallons of cylinder oil, 1,630 gallons of engine oil, 146 gallons of miscellaneous oils, 1,025 pounds of engine grease, 1,578 gallons of illuminating oil, 4,280 gallons of gasoline, the two latter items including all the oil and gasoline required for all purposes in the sewer department during the year; 2,326 pounds of new cotton waste were used and 2,300 pounds of waste were washed and reused.

The following are the principal items of repair and betterment made during the year: Tiling the dynamo-room floor, installing two electric level indicators on the storm-water pumping service, constructing the concrete and iron inclosure walls along the water front of the pumping station, painting generator engine, installing the gravity system on return drains to boilers, substituting 500-watt Tungsten lamps with Holophane reflectors for incandescent lamps in the engine room, installing one motor-driven planer in the carpenter shop, also automatic signaling gauge on the ejector main supplying river water to the condensers, and a sight-feed oiling system on generating engines. The only repair required to the main pumping engines during the year was the replacing of one air-pump rocker arm on one of the 65,000,000-gallon storm-water pumps.

Eight hundred and thirty-three thousand six hundred and seventeen pounds of pressed screenings were removed from the sewage screens and 2,153 cubic yards of sludge from the sewage sediment chamber; 747,650 pounds of ashes were also removed.

Construction.—One 50-foot tugboat was built and equipped and one 16 by 36 foot deck scow was built; 2,250 manhole irons were made in the blacksmith shop for general use on sewer construction; also 82.7 tons of reinforcing steel were cut and shaped for use on the Rock Creek main intercepting sewer. Repairs were made to all of the iron cleaning wagons and flushing carts, and to hose reels, fire hose, and cleaning tools. Many forms for special sewer construction were made, and a large quantity of special reinforced concrete, including basin tops and fittings and concrete pipe, was made. One special flushing tank wagon was equipped for service. All tools and miscellaneous supplies for the use of the sewer division were received, inspected, and issued, and records kept on the card system, and quarterly reports made of receipts and issues.

DIVISION F.—*Construction, sewerage system.*

County west of Rock Creek.—Sewers were constructed in the section west of Rock Creek as follows: West Washington, 1,500.2 linear feet, including a new trunk outlet in Thirty-first Street to the Georgetown channel and service sewers; Potomac Heights, 4,737.5 linear feet, including service sewers and a new trunk outlet for same; Tunlaw Road as far as American University, 4,580.5 linear feet; in the vicinity of Cleveland Park, 8,960.25 linear feet of trunk and service sewers; in the upper Falls Branch area for American University Park, 2,934 linear feet of service sewer main and service sewers; in Tenleytown, 3,009.5 linear feet of service sewer; in Foxhall Road north of Conduit Road, 799 linear feet of service sewers; in S Street east of Wisconsin Avenue, 557 linear feet of service sewers; in Chevy Chase, 16,030.25 linear feet of service sewer main and service sewers. Contracts also were entered into for the following work, not completed: service sewers in all streets of Reno

subdivision, a section of the separate system trunk outlet sewer for Pinehurst, also the combined system trunk outlet sewer in the Macomb Street section of the Klinge Ford valley drainage. The aggregate length of sewers constructed in this section was 40,090.25 linear feet.

County east of Rock Creek.—In the section east of Rock Creek sewers were constructed as follows: in the vicinity of Cleveland Park, 3,930.25 linear feet of service sewers; in Brightwood Park and vicinity, 6,430.7 linear feet, including a combined system sewer in Georgia Avenue and service sewers; in the vicinity of Petworth east and west of Georgia Avenue, 14,771.86 linear feet of trunk and service sewers, including a section of the Piney Branch trunk sewer; in Mount Pleasant and territory south of Rock Creek Church Road, 4,325.68 linear feet of service sewers; in Washington Heights and territory south of Park Road, 2,351.6 linear feet of service sewer; in Eckington and Le Droit Park, 2,230.59 linear feet of service sewers. Aggregate length of sewers constructed in this section, 34,040.68 linear feet.

County west of Anacostia River.—Sewers were constructed in the section west of the Anacostia River as follows: in Trinidad and Ivy City, 306.62 linear feet of service sewers; in Langdon, 1,010.80 linear feet of service sewers; in Brookland, 1,845.3 linear feet of trunk and service sewers; in the vicinity of Rhode Island Avenue extended, 10,724.15 linear feet of service sewers. Contract also was entered into for the construction of 8,380 linear feet of service sewers in the vicinity of Rhode Island Avenue extended. The aggregate length of sewers completed in this section was 12,876.07 linear feet, and the total length, including incomplete contracts, is 16,256.01 linear feet.

County east of Anacostia River.—In this section 2,314.5 linear feet of trunk and service sewers were constructed in Randle Highlands and 686.92 linear feet in Anacostia. The aggregate length of sewer constructed in this section was 3,001.42 linear feet.

City.—In the northwest section of the city proper 6,425.08 linear feet of trunk and service sewers were constructed, 2,940 linear feet of sewers were abandoned, and 84.13 linear feet of trunk sewer reconstructed. In the southwest section 3,091.05 linear feet of trunk and service sewer was constructed. In the northeast section 3,415.9 linear feet of service sewer was constructed and 501 linear feet of defective sewer was reconstructed. In the southeast section 1,756.45 linear feet of service sewer were constructed. The aggregate length of sewers constructed in the city was 14,688.83 linear feet and of defective sewer reconstructed 585.13 linear feet.

Sewage-disposal system.—The East Side intercepting sewer was extended 2,891.25 linear feet to the intersection of Monroe and Twentieth Streets NE. The Rock Creek main intercepting sewer, extending from P Street to Massachusetts Avenue, was under construction, and 2,608 linear feet were completed at the close of the year. For the construction of the first section of the Anacostia main intercepting sewer proposals were received near the close of the fiscal year.

Storm-water receiving basins.—During the year 109 storm-water receiving basins were constructed, 77 reconstructed, 8 adjusted to line and grade of streets, and 2 abandoned.

Length of main sewers and pipe sewers and number of storm-water basins constructed during the fiscal year ending June 30, 1911.

Appropriation.	Main sewers.	Pipe sewers.	Storm-water basins.
	<i>Linear feet.</i>	<i>Linear feet.</i>	
Assessment and permit work.....	531.85	66,953.82	
Miscellaneous trust funds deposits.....	1,031.71	10,022.49	24
Main and pipe sewers.....	997.10	7,136.62	79
Suburban sewers.....	7,220.80	17,080.86	
Sewage-disposal system.....	5,497.25		
Miscellaneous appropriations.....		3,050.70	6
Total.....	15,278.71	104,244.49	109

RECAPITULATION.

Total length of sewers on June 30, 1911:		
Main sewers.....	miles..	122.09
Pipe sewers.....	do.....	468.53
Total.....	do.....	590.62
Cost of sewerage system June 30, 1911.....		\$11,204,188.79
Cost of sewage-disposal system June 30, 1911.....		4,146,228.01
Total cost.....		15,350,416.80

DIVISION G.—Records and accounts.

The work of this division consists in the preparation of requisitions and vouchers, records of cost of construction and cost keeping, and preparing pay rolls, and embraced during the year 1,362 construction jobs, 8,348 foremen's reports, 5,254 card records of construction cost keeping, 986 bills, 554 pay rolls, 1,232 requisitions, 216 transfer and refund vouchers, 544 tool orders, 566 E. D. files, 88 letters, 526 completion reports, 112 statements of account, 959 floaters, 75 bids scheduled, and 1,966 reports.

The following is a summary statement of account of the various sewer appropriations for the fiscal year 1911, viz:

Sewerage system.

Cleaning and repairing sewers and basins:		
Appropriation.....	\$65,000.00	
Repayments account of deposits.....	1,032.80	
		\$66,032.80
Expended—		
Mechanics, laborers, and watchmen.....	38,816.64	
Drivers and gate tenders.....	8,252.59	
Inspectors and other per diem employees.....	1,909.56	
Construction materials and tools.....	4,021.83	
Repairs to equipment; equipment and supplies....	6,204.10	
Paid surface division for repaving work.....	771.16	
Paid engineer department stables for forage, black-smith work, etc.....	5,549.18	
Paid property clerk's office for salaries.....	360.00	
		65,885.06
Unexpended balance.....		147.74
Main and pipe sewers and receiving basins:		
Appropriation.....	60,000.00	
Repayments account of service sewers.....	794.95	
Repayments account of contingent charges.....	474.11	
		61,269.06
Expended—		
Contract construction.....	7,932.14	
Day-labor construction.....	25,682.08	
Inspectors and other per diem employees.....	3,673.81	
Construction materials and tools.....	9,282.22	
Paid surface division for repaving work.....	4,142.79	
Paid engineer department stables for forage, black-smith work, etc.....	1,074.42	
Paid property clerk's office for salaries, etc.....	679.28	
Paid chief clerk's office for salaries.....	188.00	
Paid disbursing office for salaries.....	93.00	
Outstanding contracts and materials to complete same.....	7,689.84	
		60,437.58
Unexpended balance.....		831.48

Suburban sewers:

Appropriation.....	\$110,000.00	
Repayments account of service sewers.....	15,195.88	
		<u>\$125,195.88</u>

Expended—

Contract construction.....	55,522.94	
Day labor construction.....	20,593.63	
Inspectors and other per diem employees.....	4,121.79	
Construction materials and tools.....	11,074.60	
Purchase and maintenance motor trucks.....	3,689.79	
Paid surface division for repaving work.....	1,108.73	
Paid engineer department stables for forage, blacksmith work, etc.....	1,480.32	
Paid property clerk's office for salaries, etc.....	1,303.97	
Paid chief clerk's office for salaries.....	152.00	
Paid disbursing office for salaries.....	228.75	
Paid inspector of asphalts and cements for supplies.....	7.42	
Outstanding contracts and materials to complete same.....	25,155.65	
		<u>124,439.59</u>
Unexpended balance.....		<u>766.29</u>

Assessment and permit work sewers:

Allotment for sewers.....	53,000.00	
Repayments account of service sewers.....	78,229.19	
Repayments account of permit deposits.....	9,106.80	
		<u>140,335.99</u>

Expended—

Contract construction.....	21,603.11	
Day-labor construction.....	57,906.32	
Inspectors and other per diem employees.....	3,588.96	
Construction materials and tools.....	21,988.62	
Paid surface division for repaving work.....	2,159.30	
Paid engineer department stables for forage, blacksmith work, etc.....	1,268.37	
Paid property clerk's office for salaries.....	1,107.40	
Paid chief clerk's office for salaries.....	52.60	
Paid disbursing office for salaries.....	48.75	
Outstanding contracts and materials to complete same.....	30,506.59	
		<u>140,229.42</u>
Unexpended balance.....		<u>106.57</u>

Sewage disposal system.

Maintenance and operation, sewerage-pumping station:

Appropriation.....	\$43,000.00	
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Expended—

Mechanics, laborers, and watchmen.....	\$22,275.69	
Inspectors and other per diem employees.....	1,087.50	
Coal, oils, waste, and other supplies.....	17,923.07	
Tools and equipment renewals.....	1,648.11	
		<u>42,934.37</u>
Unexpended balance.....		<u>65.63</u>

East side interceptor, boundary to Brookland:

Unexpended balance fiscal year 1910.....	6,009.50	
Appropriation fiscal year 1911.....	10,000.00	
		<u>16,009.50</u>

Expended—

Contract construction and materials.....	15,476.47	
Inspectors and other per diem employees.....	351.00	
Day-labor construction.....	93.25	
		<u>15,920.72</u>
Available balance.....		<u>88.78</u>

Rock Creek main interceptor:

Appropriation.....		\$40,000. 00
Expended—		
Contract construction.....	\$18,406. 78	
Day-labor construction.....	961. 73	
Inspectors and other per diem employees.....	786. 75	
Construction materials and tools.....	1,647. 54	
Paid property clerk for salaries, etc.....	360. 00	
Outstanding contracts and materials to complete same.....	14,013. 39	
		<u>36,176. 19</u>

Available balance..... 3,823. 81

Anacostia main interceptor:

Appropriation.....		50,000. 00
Expended—		
Day-labor construction.....	249. 62	
Construction materials and tools.....	4,794. 39	
Paid property clerk for salaries, etc.....	450. 00	
Outstanding contracts and materials to complete same.....	40,290. 00	
		<u>45,784. 41</u>

Available balance..... 4,215. 59

Unused balance:

Balance on hand July 1, 1910..... 12,712. 20

Expended—

Contract construction.....	512. 00	
Day-labor construction.....	2,945. 94	
Inspectors and other per diem employees.....	264. 00	
Construction materials and tools.....	3,297. 24	
		<u>7,019. 78</u>

Available balance..... 5,692. 42

Purchase and condemnation of land for rights of way for sewers.

Appropriation.....	\$1,000. 00
Expended—	
Recorder's fees, witness fees, searching titles, etc.....	416. 40
Unexpended balance.....	<u>583. 60</u>

COMBINED SYSTEM.

Work was continued on the combined system sewerage in Piney Branch Valley and included main-line extensions as well as the development of the lateral system, and also the detail plans for the large outlet section at the head of the park just west of Sixteenth Street. The latter includes a specially designed automatic gate control for governing the quantity of storm water admitted to the intercepting sewer, so devised as to deliver the full capacity of its 3-foot diameter section, thus preventing the surface discharge of any portion of the run-off from light rains. During heavy storms the intercepting system is protected by excluding the flow which brings down large quantities of sand and gravel, while the sewage at such times is but an insignificant part of the discharge. So far as possible the clear water from springs and small brooks is being excluded from the main sewer and delivered to the open stream below the outlet. Somewhat later this may be considerably augmented by by-passing the ordinary flow of Piney Branch from the upper valley eastward of Georgia Avenue around the new trunk sewer, through the old separate system pipe line, and thence into the stream below the outlet. With careful planning and maintenance of the sewerage in the upper valley, the open stream in the park system west of Sixteenth Street may be maintained in good condition, but should be kept under observation. In this connection it may be suggested that this and certain other streams flowing into Rock Creek should be posted at intervals with a notice that the water is not suitable for drinking. While somewhat objectionable such signs would give a proper warning to the public, and observation indicates it to be necessary.

SEPARATE SYSTEM.

Substantially the entire work of the year has been confined to the development of the lateral systems, including the construction of subtrunk lines in the several suburban drainage districts. In the upper Potomac area the separate system has been extended through a considerable territory and rights of way secured and plans prepared for several small systems between the receiving reservoir and the District line. Service sewers in Falls Branch Valley, the valley of the Soapstone Branch, and in Broad Branch Valley all to the westward of Connecticut Avenue have been planned and constructed. Eastward of Rock Creek Park the drainage system has been further developed to the boundary of the District and the construction extended over a considerable new area. In the northeast, along the west side of the Anacostia Basin, the lateral system has been largely extended to cover the built-up section north of Rhose Island Avenue extended, the main interceptor system projected to Bunker Hill Road and construction thereon begun, and the plans for the trunk interceptor along Bunker Hill Road to North Brookland prepared for execution during the next fiscal year.

SEMICOMBINED SYSTEM.

The work of the year included plans for several large projects on the semicombed system, where it is necessary to provide for a portion of the rainfall in order to prevent the flooding of parks and streams by dirty surface drainage from higher built-up areas or for other reasons. The most extensive of these is in Massachusetts Avenue Heights, where a broad parkway that includes an attractive stream and connects with the park system of Rock Creek Valley has been extended for nearly a mile into this large subdivision. Here the upper areas, graded and divided into city lots and blocks, are provided with the regular combined system for the removal of all storm water, while the intermediate areas along the more rugged sides of the valley, divided into large plots with little grading, are provided with a drainage system on the basis of 1 inch of rainfall per hour. All park drainage, except roadways and the surplus from excessive storms will discharge directly into this small park stream. Adjoining this subdivision in the upper valley are large parked areas, and these have been utilized as feeders to the park stream by separate piping independent of the sewerage. In the upper Potomac Valley along the Conduit Road, the semicombed system has been introduced wherever the addition of considerable storm water to the drainage was required in order to insure the maintenance of sanitary conditions.

CONSTRUCTION OF SEWERS.

Continued excellent results have been accomplished as the result of the reorganization of the construction forces of the sewer division, begun three years ago, and very considerable reduction in the cost of sewers during the past three years is chiefly to be credited to systematic organization along lines of efficiency and economy. The effect of this is less apparent, not only because the cost of labor has somewhat increased while the cost of materials of construction has not appreciably declined, and much recent work has involved special and difficult details, adding to the cost, but chiefly, with the sewer construction extending frequently to the margin of the District, because the average length of team haul on construction materials, a very expensive item, has increased about 40 per cent. Efforts have been made to reduce this large item of expense by securing the delivery of terra-cotta pipe along the railroad much nearer the work than are the city property yards, and the property clerk has cooperated to this end. As a further advance in this economy, equipment is being prepared which will permit water distribution of construction materials from Bennings on the Anacostia River as far as the District line on the Chesapeake & Ohio Canal. The construction work of the sewer division is carried on with a large and increasing annual expense, resulting from the present methods of handling sewer division construction materials, and the detail distribution of same. And this is entirely apart from the increasing annual expenditure of sewer funds by the property clerk for this work. During the fiscal year this expenditure amounted to \$4,260, or nearly 7 per cent of the cost of the materials actually used. It is believed that these materials after purchase could be handled by the sewer division with less expenditure and at the same time with a very considerable saving in the cost of distributing same to the line of work, while the safeguards and checks would be equally efficient as under the present methods.

In designing sewers of larger size some economy has resulted from the development of an all-concrete section made with steel-plate molds, that has a limited application where the conditions permit the omission of the expensive brick lining. Also a

standard concrete section has been designed with vitrified brick invert but omitting the usual red-brick lining, formed monolithic with the arch center hinged at the crown, that has structural advantages over the old brick section, and effects a saving by the difference between the cost of concrete masonry at \$7 per cubic yard and red-brick masonry at \$11 per cubic yard.

MAINTENANCE OF THE SEWERAGE SYSTEM.

The maintenance work of the year included the repairs of a number of large sewers and amounted in some cases to practical reconstruction. Among these was the completion of the 24-foot Tiber sewer under the Union Station fill. The Fourteenth Street trunk sewer was thoroughly repaired as far northward as Thomas Circle, and many repairs were made throughout the sewerage system.

Work was continued during the year of disconnecting and abandoning old duplicate lines of sewers, which it was the practice for many years to leave partly in service, when paralleled by new lines. In some cases four lines of sewers were found in one street and frequently two lines where only one was necessary. This work must be preceded by careful field examination to determine all connections to the old line and is therefore tedious and expensive. While if done at the time of laying the second sewer, with the trench open and all connections revealed, it is comparatively simple and inexpensive work. Then these old sewers, laid in some cases 50 years ago, are often grossly insanitary, and should have been removed. The present practice of abandoning the old sewers at the time they are replaced by new lines should be rigidly adhered to and the work of abandoning old duplicate sewers continued to its completion.

The thorough inspection of all sewers was continued during the year, while the work of cleaning and flushing was carried on more effectively than in the previous year.

Some economies have been introduced into the cleaning of catch basins, but without detriment to thoroughness. Necessarily requiring a large annual expenditure, this division has not yet been so well equipped or organized as the more important construction forces, but the work has been given careful study during the past two years and complete daily cost records obtained of actual work performed, where previously there were none of value. From the data thus secured, a reorganization has been planned, which together with new and better equipment, will give greatly improved efficiency and a probable resultant economy. An improvement in the work this year is the frequent flushing of all catch basins by tank wagons, from spring to autumn, followed during the mosquito-breeding season by a dosing of "mosquito oil."

Particular attention is invited to changes in methods of street cleaning inaugurated during the year which affect this work. While the use of street-washing machines on largely extended areas materially reduces the amount of street dirt removed by street-cleaning carts, it correspondingly increases the amount to be removed from the sewers and basins. This is now appreciably felt and will quite largely increase the cost of sewer and basin cleaning. No additional appropriation has been requested, as the actual increase necessary can only be determined from experience, but a study of costs is being made to this end.

There was but one case of a stoppage of a public sewer during the year, a small pipe line being temporarily obstructed by debris washed in from a neighboring building construction during a heavy storm.

The following tabulation shows that the total length of sewer has increased to nearly 600 miles, and that it has doubled in 20 years without an appreciable increase in the maintenance appropriation.

Year.	Length of sewers.	Appropriation for maintenance.	Cost of maintenance per mile.	Year.	Length of sewers.	Appropriation for maintenance.	Cost of maintenance per mile.
	<i>Miles.</i>				<i>Miles.</i>		
1892.....	298.38	\$43,000	\$144.11	1902.....	436.89	58,000	132.76
1893.....	310.44	45,000	144.96	1903.....	448.09	58,000	129.44
1894.....	325.07	45,000	138.43	1904.....	456.87	58,000	126.95
1895.....	338.30	45,000	133.02	1905.....	468.86	58,000	123.70
1896.....	351.55	45,000	128.00	1906.....	484.40	42,000	86.70
1897.....	369.04	50,000	135.49	1907.....	501.44	1 38,000	75.78
1898.....	382.78	50,000	130.62	1908.....	521.18	1 44,500	85.38
1899.....	394.92	50,000	126.61	1909.....	542.03	1 45,000	83.02
1900.....	408.09	50,000	122.52	1910.....	567.98	1 48,500	85.39
1901.....	421.34	50,000	118.67	1911.....	589.74	1 50,000	84.78

¹ Exclusive of sewage-disposal maintenance.

In preparation for the removal by water of all wastes from street basins, as well as from the sewerage pumping station, work was continued on improving the floating and shore equipment engaged on this duty. These wastes aggregate a very large volume and can no longer be disposed of on the few remaining public dumps within and around the city. The work of preparing equipment for removal by water has been under way for more than two years. During this fiscal year a towboat 50 feet in length has been designed and built at the sewer department shops and equipped with a 50-horsepower marine gasoline engine and marine service equipment for this work by the regular employees of the department; also one additional deck scow was constructed. In further preparation a portion of the public space on the water front near the foot of First Street SE. has been secured and work begun on fitting same for handling these waste materials in an economical and sanitary manner.

TRANSPORTATION.

In this year authority was granted for the purchase of two motor trucks, one to be used by field parties on construction work and one for inspection service. As these machines replaced only in part the horse-drawn vehicles, opportunity was taken to study the relative cost and difference in economy between the two means of transportation, with the following conclusions:

(1) The maintenance of the horse-drawn vehicle costs the same, whether in service or not, while that of the motor-driven vehicle stops when not in service.

(2) The horse-drawn vehicle requires double the time per mile of travel and practically consumes in travel 25 per cent of the field party time as against 12½ per cent for the motor-driven vehicle.

(3) The horse-drawn vehicle costs 20 cents per mile of actual travel while the motor-driven vehicle costs 3 cents per mile plus repairs, etc. As these were new machines, there were practically no repair charges during the first year, and no figures can be given as yet under this head.

These conclusions are tabulated as follows:

Comparative cost of one motor-driven and one horse-drawn field party wagon for fiscal year 1911.

Vehicle.	Actual cost maintenance one vehicle.	Miles of travel each vehicle.	Cost per mile of travel.	Loss of time of field party in travel time.	Total cost per vehicle.
Horse-drawn ¹	\$450	2,250	\$0.20	\$757.50	\$1,207.50
Motor-driven ²	156	5,280	.03	378.75	534.75

¹ Used by one field party.

² Used by two or more field parties.

Making a liberal allowance for repairs, renewals, and depreciation on the motor-driven vehicles, it is evident that a very considerable saving results from their use, even were the same number of vehicles required, but in the actual work and in the estimates submitted for the next fiscal year, one motor-driven vehicle replaces two horse-drawn vehicles, so that the saving is double that indicated.

Very respectfully, your obedient servant,

ASA E. PHILLIPS,
Superintendent of Sewers.

Capt. E. M. MARKHAM,
Corps of Engineers, United States Army,
Assistant to Engineer Commissioner, District of Columbia.

TABLE NO. 1.—Statement of sewers constructed

Contract No.	Locations.	Pipe sewers.		Main sewers.		Allowance to contractor.
		Length.	Size.	Length.	Size.	
		<i>Feet.</i>	<i>Inches.</i>	<i>Feet.</i>		
4518	In line of old Anacostia Bridge to bulkhead line.	943.7	15	319.75	4' 4" x 4'	\$6,819.15
4553B	In Lawrence, Eighteenth and Twentieth Streets, Langdon.	1,438.2	12	457.25		2,643.81
4556	Iowa Avenue, Buchanan, Allison, and Webster Streets.	842.35	21	423.65	2' x 3'	4,804.60
4583	Grant Road between Wisconsin Avenue and Nourse Road.	660.6	15	497	2' x 2' 6"	1,829.67
4584A	Tunlaw Road between Snyder's Lane and Thirty-seventh Street.	446.2	21			1,400.78
4584B	New Mexico Avenue between Arizona and Nebraska Avenues.	631.3	15			4,172.62
		3,483	15			
4585A	Fourteenth Street, Colorado Avenue, Piney Branch Road, and Longfellow Street.	299.6	24			
		390	21			
		30	18	508.6	3' 3"	5,541.89
		821.8	15			
4585B	Gallatin and Farragut Streets between Georgia Avenue and Fourteenth Street.	952.9	10			
4586	Porter Street between S Street and Connecticut Avenue.	951.3	15			3,047.87
		1,346.5	12			
4610A	E Street NW. between Twenty-fifth and Twenty-sixth Streets.	976.5	12			1,237.24
4610B	F Street SW. between Third and Four-and-a-half Streets.	157.5	18			268.69
4610C	A Street NE. between Sixth and Seventh Streets.	603.45	18			1,388.82
4610D	Second Street NE. between B and C Streets.	316.65	15			845.61
4610E	Alley of Square 400.	143.15	12			757.41
4610F	C Street NW. between Ninth and Tenth Streets.	501	12			823.96
4610G	Alley of Square 395.	363.9	12			518.05
4610H	I Street NE. between Tenth and Eleventh Streets.	377.35	12			771.15
4610I	Twelfth Street NW. between B and C Streets.	338	12			436.74
4611	Anacostia River front of sewage-pumping station and Potomac River at outfall, Grimes Wharf.	252.57	12	214.5	3'	1,084.84
						1,391.10
4712	Fourteenth Street between Farragut and Hamilton Streets, etc.	142.7	24			
		377.2	21			
		377.5	18			3,224.38
		1,055	15			
4718A	Porter Street between Thirtieth and Idaho Avenue.	322.5	12			
4718B	Connecticut Avenue between Porter and Rodman Streets, and in Rodman Street.	1,255.15	12			3,086.44
4728A	Piney Branch trunk sewer between Shepherd and Fourteenth Streets.	1,550.85	10			2,386.30
4728B	Piney Branch trunk sewer between Emerson Street and Georgia Avenue.	1,123.5	12			
4754	Florida Avenue NW. between Eighth and Ninth Streets.			1,376.5	9' 9"	21,482.39
				611.5	9' 3"	9,528.81
				118.15	4' 3"	1,447.13
				283.3	3' 6"	
4755	Forty-seventh Street NW., Brandywine to Fessenden Streets.	1,088.6	10			
		900	15			3,526.31
4758	Pennsylvania Avenue SE. between Railroad Avenue and Thirtieth Street.	945.4	12			
		2,314.5	12			2,305.07
4759	East side Rock Creek between Pennsylvania Avenue and M Street.			78	6'	
				12.25	2' 6"	3,331.18
				26.3	2' 6"	
4756A	Fifteenth Street SW. between C Street and Tidal Reservoir.	267	24			1,071.08
4756B	Fifteenth Street SW. between D and Water Streets, etc.	404.8	21			
		990	24			1,515.24
4757	Rhode Island Avenue NE. between Twelfth and Reed Streets.	732.25	24	449.25	3'	3,956.37
4772	Georgia Avenue between Farragut and Jefferson Streets.	663.80	21	1,480.95	3'	4,524.02
		9	12			
4773	Vicinity of Potomac Heights Subdivision....	593	18			
		953	12	1,506	2' x 3'	
		233	10			
4785	Fifteenth Street NW. between New York Avenue and I Street.	426.8	15			2,727.76

¹ D shape.² Arch.³ Arch repaired.

under contract, fiscal year ended June 30, 1911.

Materials.		Cost.		Total cost.	Appropriation.	Contractor.
Charged.	Not charged.	In-spection.	Repairs to pavements.			
\$1,367.52	\$3.97	\$442.00	.....	\$8,632.64	Suburban, 1910.....	W. F. Brenizer Co.
266.34	664.23	158.00	.....	3,732.38	Assessment, 1910.....	Geo. Hyman.
857.55	831.54	126.00	.....	6,619.69	.....do.....	W. F. Brenizer Co.
166.88	324.32	80.50	\$392.87	2,794.24	Suburban, 1911.....	Do.
174.00	459.27	100.00	.....	2,134.05	Suburban, 1910.....	Do.
489.00	1,077.69	196.66	.....	5,935.97	.....do.....	Do.
877.79	906.84	198.00	51.23	7,175.75	.....do.....	Do.
292.20	604.04	42.00	3.30	3,989.41	.....do.....	Do.
116.63	224.20	136.00	.....	1,714.07	Assessment, 1910.....	Geo. Hyman.
26.76	75.64	28.00	.....	399.09	Assessment, 1911.....	W. F. Brenizer Co.
96.00	292.37	32.00	465.21	2,274.40	Main and pipe, 1910.....	Do.
64.97	150.35	20.00	18.61	1,099.54	.....do.....	Do.
57.38	129.02	24.00	240.44	1,208.25	.....do.....	Do.
51.00	130.95	72.00	141.34	1,219.25	.....do.....	Do.
46.50	95.89	20.00	230.94	911.38	.....do.....	Do.
34.50	105.42	24.00	265.24	1,200.31	.....do.....	Do.
32.63	71.94	12.00	.....	553.31	.....do.....	Do.
234.23	6.97	86.00	194.60	1,606.64	.....do.....	Do.
		60.00	.....	1,451.10	Cleaning and repairing, 1910.	John Miller Co.
379.77	895.77	78.00	4.16	4,582.08	Assessment, 1911.....	W. F. Brenizer Co.
307.32	766.38	156.00	.....	4,316.14	.....do.....	Geo. Hyman.
119.48	263.62	211.50	.....	2,890.90	.....do.....	Do.
7,968.29	44.14	345.33	.....	29,840.15	Suburban, 1911.....	W. F. Brenizer Co.
2,624.51	37.08	214.00	.....	12,405.39	.....do.....	Do.
343.20	4.81	69.27	48.26	1,912.67	Main and pipe, 1911.....	Do.
362.36	759.26	128.00	.....	4,775.93	Assessment, 1911.....	Do.
256.69	537.72	114.00	39.27	3,252.85	.....do.....	Geo. Hyman.
366.06	.....	216.00	.....	3,913.24	Main and pipe, 1911.....	W. F. Brenizer Co.
141.90	420.40	64.00	167.85	1,865.23	.....do.....	Geo. Hyman.
214.40	707.71	259.87	271.32	2,998.54	.....do.....	Do.
712.88	902.20	204.00	.....	5,775.45	Suburban, 1911.....	Do.
1,400.40	20.98	575.55	.....	6,520.95	.....do.....	W. F. Brenizer Co.
					Assessment, 1911.....	Do.
90.00	146.93	230.18	.....	3,194.87	Main and pipe, 1911.....	Do.

TABLE NO. 1.—*Statement of sewers constructed under*

Contract No.	Locations.	Pipe sewers.		Main sewers.		Allowance to contractor.
		Length.	Size.	Length.	Size.	
4805	Vicinity of Connecticut Avenue Highlands...	Feet. 1,682.2	Inches. 10	Feet. 415	3'	\$3,604.00
4811	First Street SE. between Potomac River and O Street.					
4820	First Street SE. between P and N Streets, etc.	(1)				
4858	Fifteenth Street NW. between Pennsylvania Avenue and G Street.	174	15			
4859	H Street NW. between Fourteenth and Fifteenth Streets.	90	12			
4870A	Newton Street between Eighteenth and Twentieth Streets NE.	(1)				
4870B	Monroe Street between Fourteenth and Eighteenth Streets NE.	(1)				
4870C	Between Seventeenth and Monroe and Fourteenth and Lawrence Streets.	(1)				
4870D	Between Sixteenth and Lawrence and Fourteenth and Franklin Streets.	(1)				
4873	Valley of Rock Creek north of Military Road.	(1)				
4874	Nineteenth Street NE. between C and D Streets.	(1)				
4875A	Vicinity of Tenleytown—Belt Road, Fessenden and Hancock Streets, etc.	(1)				
4875B	Vicinity of Tenleytown—Howard Street, Alley Square 1864, Elliot Place, etc.	(1)				
4875C	Vicinity of Tenleytown—Fessenden Street, Howard Street, and Chappel Road.	(1)				
4876	Macomb Street between Connecticut Avenue and Thirty-fourth Street.	(1)				
4878	B Street between Nineteenth and Twenty-first Streets.	(1)				
	Total.....	38,251.98		8,777.95		107,530.48

¹ No work performed.

contract, fiscal year ended June 30, 1911—Continued.

Materials.		Cost.		Total cost.	Appropriation.	Contractor.
Charged.	Not charged.	In-spection.	Repairs to pavements.			
\$162.00	\$317.50	\$144.00	.....	\$4,227.50	Suburban, 1911.....	W. F. Brenizer Co.
					Main and pipe, 1911.....	Geo. Hyman.
					do.....	W. F. Brenizer Co.
					Assessment, 1911.....	Do.
					do.....	Geo. Hyman.
					Suburban, 1911.....	James A. Coyle.
					Assessment, 1911.....	Do.
					do.....	Do.
					do.....	Do.
					Suburban, 1911.....	W. F. Brenizer Co.
					do.....	Do.
					Assessment, 1911.....	Do.
					do.....	Do.
					do.....	Do.
					Suburban, 1911.....	Do.
					Assessment, 1911.....	Do.
20,701.14	11,979.15	4,866.86	\$2,534.64	147,612.27		

TABLE No. 2.—Statement of sewers laid under the appropriation for assessment and permit work (permit system) fiscal year ended June 30, 1911.

Order No.	Location.	Length.	Size.	Amount at deposit.	Cost.		Total cost.	Amount returned.	For whom done.
					To District of Columbia.	To Depositor.			
		<i>Feet.</i>	<i>Inches.</i>						
1	Reeddale Street east of Sixteenth Street NE.	94	10	\$135.00	\$85.13	\$85.14	\$170.27	\$49.86	H. L. Christman.
2	Fifteenth Street north of B Street NE.	8	12	15.00	9.41	9.42	18.53	5.58	E. Reznick.
3	Adams Street between Fourth Street and Rhode Island Avenue NE.	12	10	30.00	12.14	12.15	24.29	17.58	W. H. Bailey.
4	Channing Street east of North Capitol Street.	105.5	8	80.00	70.53	70.54	141.07	9.46	E. M. Dullin.
5	Alley of square 70.	58.5	8	73.68	73.67	73.68	147.35	.....	Do.
6	Thirteenth Street and Kentucky Avenue SE.	53	10	75.00	58.26	58.26	116.51	16.74	C. A. Didden & Son.
7	G Street between Eleventh and Twelfth Streets NW.	116	12	270.00	116.22	116.22	322.44	153.78	C. Beckers.
8	Alley of square 220.	186	12	186.39	186.38	186.39	372.77	.....	C. H. De Shour.
9	Alley of square 2,510.	186	8	130.00	114.16	114.17	228.33	15.83	Wood, Donn & Deming.
10	Pierce Mill Road west of Beach Drive.	{ 341.1	10	500.00	498.39	498.40	996.79	1.60	E. S. Newman.
11	Piney Branch Road south of Butternut Street.	{ 164.4	8	110.00	103.75	103.76	207.51	6.24	J. A. Garber.
12	Alley of square 3,079.	{ 183.5	12	510.00	482.28	482.29	964.57	27.71	J. W. Brawner.
13	Eighth Street south of E Street NW.	468.9	10	130.00	130.00	150.00	300.00	.....	S. Oppenheimer.
14	Eight Street between Elder and Geranium Streets NW.	521.7	15	1,365.00	1,009.80	1,009.81	2,019.61	355.19	L. P. Shoemaker.
15	do.	544.2	15	.....	77.28	77.29	154.57	2.71	B. S. Adams.
16	Fortieth Street between H and I Streets NW.	52	12	280.00	230.92	230.93	461.85	49.07	C. B. Hight.
17	North Carolina Avenue between Fifteenth and C Streets NE.	296.5	10	270.00	221.02	221.02	542.04	.....	Cap. Traction Co.
18	K Street between Thirty-first and Thirty-second Streets NW.	361.3	10	221.02	221.02	221.02	442.04	.....	Fortieth Street Heights Land Co.
19	Allison Street between Arkansas Avenue and Thirteenth Street.	338.7	10	204.11	204.10	204.11	408.21	.....	Do.
20	Thirteenth Street between Allison and Buchanan Streets.	8	10	15.00	7.70	7.70	15.40	7.30	W. E. Curtis.
21	Connecticut Avenue between S Street and Florida Avenue.	26.3	12	(2)	23.76	23.76	47.52	.....	Wood, Donn & Deming.
22	Nineteenth Street between B and C Streets NW.	21	6	9.25	9.25	9.25	18.50	.....	Fourteenth Street Heights Land Co.
23	Buchanan Street and Arkansas Avenue.	{ 197.5	12	325.00	239.99	240.00	479.99	85.00	S. H. Edmonston.
24	Fourth Street NE. between T and Seaton Streets.	122	10	75.00	66.68	66.69	133.37	8.31	W. A. Hill.
25	Lincoln Road NE. between Seaton Place and T Street.	68	10	40.00	40.00	40.00	80.00	.....	T. W. Fowler.
26	Alley of square 2,849.	27.2	10	80.00	.....	.....	111.22	.....	A. Stewart.
27	Fortieth Street NW. north of W Street 1.	43	12	80.00	.....	.....	.....	.....	.....
	Total.	4,643.3		.....	4,090.81	4,090.98	8,258.43	812.23	.....

1 Work completed fiscal year 1912.

3 General deposit.

TABLE No. 3.—Statement of sewers laid under the appropriation for assessment and permit work (assessment system) fiscal year ended June 30, 1911.

Order No.	Location.	Length.	Size.	Cost of—			Total cost.
				Material.	Labor.	Repay- ing.	
		Feet.	Inches.				
100	Kanawha Street, between Thirty-seventh Street and Connecticut Avenue ¹						
101	Georgia Avenue, between Butternut Street and Whittier Place ²	140.5	12	\$36.25	\$72.75		\$109.00
102	Adams Street, between First and North Capitol Streets ²	486.5	10	102.29	289.83		392.12
103	Dahlia Street, between Eighth Street and Piney Branch Road.....	290.7 350	10 12	230.78	745.76		976.54
104	Keokuk Street, between Connecticut Avenue and Thirty-seventh Street.....	716	10	229.95	514.46		744.41
106	Alley of Square No. 554.....	375.5	12	150.00	250.00	\$120.00	520.00
106A	do.....	174.9 100	10 12	137.87	349.05	22.50	509.42
107	North Carolina Avenue, between Fifteenth and Sixteenth Streets.....	70	10	20.06	65.89		85.95
109	Fourteenth Street NE., north of C Street.....	100.5	12	59.75	134.80		194.55
110	Northampton Street, between Belt Road and Thirty-ninth Street.....	360.2	10	122.67	319.23	42.23	484.13
111	Warder Street, between Manor Place and Newton Street.....	26	10	9.35	48.00	4.72	62.07
112	Spring Road, between Tenth Street and Rock Creek Church Road.....	141.75	12	73.91	189.13		263.04
113	Legation Street, west of Thirty-ninth Street.....	378	12	136.50	421.94		558.44
114	Thirty-ninth Street, between Livingstone and Northampton.....	219.2	15	123.92	316.05	64.68	504.65
115	G Street between Half and Canal Street.....	163.5	10	66.25	157.05		223.30
116	Alley of Square 4510.....	303	12	125.93	262.55		388.48
117	Shepherd Street, between Eighth Street and New Hampshire Avenue.....	61.1	10	19.80	171.71	8.32	199.83
118	Alley of Square 3040.....	196.8	8	62.78	206.30		269.08
119	Parkwood Place, between Fourteenth Street and Holmead Place.....	377.8	12	179.73	398.21		577.94
120	Alley of Square 3051.....	432.5	12	222.34	466.15		688.49
121	Florida Avenue, between Fifth and Sixth Streets NE.....	173.5	12	82.23	187.96		270.19
122	Seventh Street, between Florida Avenue and Orleans Place.....	90	10	28.30	84.57	30.87	143.74
123	Keokuk Street, between Connecticut Avenue and Thirty-ninth Street.....	548.4 500	12 12	223.35 200.00	600.32 699.00		823.67 899.00
123A	do.....						
124	Forty-second Street NW., between Garrison and Harrison Streets.....	390	12	160.49	414.13		574.62
125	Third Street, between East Capitol and A Streets NE.....	71.2	12	44.66	101.04	10.40	156.10
126	Eighth Street, south of Florida.....	44.2	10	14.51	48.67	2.94	66.12
127	Alley of Square 449.....	105	8	43.09	91.52	69.21	203.82
128	Columbia Road, abutting Square 3052.....	146.9	12	75.80	154.62		230.42
129	North Capitol Street, at Channing Street.....	70 73	12 10	71.37	167.95		239.32
130	Lexington Street, between Sixth and Seventh Streets.....	240	10	72.37	189.29		261.66
131	Garrison Street, between Forty-first Street and Belt Road.....	228	12	101.55	288.79		390.34
132	Livingstone Street, between Connecticut Avenue and Thirty-seventh Street.....	369.3	12	150.00	634.31		784.31
132A	do.....	426	10	148.24	300.00	79.02	527.26
133	Q Street, west of First Street NW.....	17	12	6.57	35.74		42.31
134	Capitol Avenue, between Kendall and Mount Olivet Streets.....	55.5	10	16.22	58.88		75.10
135	Mount Olivet Street, east of Montello Avenue.....	251	12	80.33	345.00	1.05	426.38
136	W Street, between Flagler and Second Streets NW.....	318 57	15 12	196.08	310.00	8.22	514.30
137	R Street, between Eighteenth and Nineteenth Streets NW.....	180	10	55.49	171.65	30.24	257.38

¹ Work reported in fiscal year 1910.² Work begun in fiscal year 1910.

TABLE NO. 3.—Statement of sewers laid under the appropriation for assessment and permit work (assessment system) fiscal year ended June 30, 1911—Continued.

Order No.	Location.	Length.	Size.	Cost of—			Total cost.
				Material.	Labor.	Repaving.	
		<i>Feet.</i>	<i>Inches.</i>				
139	Franklin Street, between Twenty-fourth and Twenty-sixth Streets..	370	10	\$135.30	\$395.98	.....	\$531.28
140	S Street, between Second and Third Streets NW.....	3 5.9	12	121.92	231.98	.....	353.90
141	Alley of Square 1207.....	100	10	43.88	121.63	.....	165.51
142	Canal Street, between G and H Streets SW.....	2 3.5	10	135.01	271.63	.....	406.64
143	Sixteenth Street, between Decatur Street and Blagden Avenue.....	171 241.4 226.7	8 10 12	189.72	499.22	\$4.35	693.29
144	Randolph Street, between First and Second Streets NW.....	165	12	77.88	193.12	.....	271.00
145	Park Road, east of Nineteenth Street.	154	12	51.93	146.00	10.01	207.94
146	Upshur Street, crossing Seventh Street NW.....	202.5	10	77.16	199.55	.....	276.71
147	Fifteenth Street, between Harvard and Fuller Streets.....	379.1	15	194.40	621.18	.....	815.58
148	Connecticut Avenue, north of Livingstone Street.....	231	10	71.09	402.98	63.11	537.18
149	Wisconsin Avenue, at Windom Street NW.....	147 328.3	12 10	176.89	570.12	13.58	760.59
150	Harvard Street, between Fourteenth and Fifteenth Streets NW.	165.4	12	76.09	261.53	.....	337.62
151	Fifteenth Street, between Harvard Street and Columbia Road.....	113.6	10	30.84	145.66	.....	176.50
152	Florida Avenue, between Second and R Streets.....	87.2	10	26.99	79.65	9.82	116.46
153	Lawrence Street, between Twentieth Street and South Dakota Avenue.....	560.7 117.7 21.5	12 10 15	181.81 100.00	400.00 552.60	.....	581.81
153A	.....do.....						
154	Twenty-second Street, between Rhode Island Avenue and Lawrence Street.....	620	10	197.15	616.20	.....	813.35 652.60
155	Kearney Street NE., between Twentieth and Twenty-second Streets.....	432.8	10	163.49	410.37	.....	573.86
156	Florida Avenue NE., between Fifth and Sixth Streets.....	65	12	38.30	87.67	.....	125.97
157	F Street NW., between Eleventh and Twelfth Streets.....	191.8	15	155.42	671.46	.....	826.88
158	Spring Road NW., between Eleventh and Thirteenth Streets.....	52.2	10	37.20	86.75	.....	123.95
159	Warder Street, between Irving and Kenyon Streets.....	812.7	10	227.51	632.85	9.71	870.07
160	Georgia Avenue NW., between Longfellow and Madison Streets.....	286.7	10	74.78	266.34	6.71	347.83
161	Jefferson Street, between Fifth and Eighth Streets.....	321 418	12 10	214.12	689.43	2.85	906.40
162	Aspen Street NW., east of Georgia Avenue.....	527.3	10	142.94	481.50	.....	624.44
163	Park Place, between Twenty-third and Twenty-fifth Streets.....	100	10	45.37	109.39	.....	154.76
164	Hamlin Street NE., between Twelfth and Thirteenth Streets..	139	8	32.37	170.25	.....	202.62
165	Keokuk Street, between Thirtieth and Forty-first Streets.....	348.2	12	135.52	554.24	.....	689.76
166	Davenport Street, east of Wisconsin Avenue.....	285	10	78.04	256.70	.....	334.74
167	Wisconsin Avenue, between Davenport Street and Belt Road.....	132	12	61.50	215.28	16.80	293.58
168	Lawrence Street NE., between Sixteenth and Eighteenth Streets.....	444.6	15	221.85	311.97	.....	533.82
169	Thirtieth and Ordway Streets NW..	9	10	18.75	34.50	.....	53.25
170	Seventeenth Street NE., between Lawrence and Kearney Streets.....	361.2	12	134.47	279.78	.....	414.25
171	Livingstone Street, between Thirtieth and Forty-first Streets.....	287.4	12	100.91	652.36	27.44	780.71
172	Twenty-fourth Street NE., between Irving and Hamlin Streets.....	175	8	36.13	225.69	.....	261.82
173	Seventeenth Street NE., between Kearney and Jackson Streets.....	361.3	12	138.33	514.24	.....	652.57
174	Seventh Street NW., between Jefferson and Kennedy Streets.....	323	10	181.19	451.38	.....	632.57
175	P Street SW., between Canal and First Streets.....	166	10	49.26	113.84	.....	163.10

TABLE NO. 3.—Statement of sewers laid under the appropriation for assessment and permit work (assessment system) fiscal year ended June 30, 1911—Continued.

Order No.	Location.	Length.	Size.	Cost of—			Total cost.
				Material.	Labor.	Repaying.	
		<i>Feet.</i>	<i>Inches.</i>				
176	A Street NE., between Sixteenth and Seventeenth Streets.....	271.8	10	\$111.35	\$271.91		\$383.26
177	Jackson Street NE., between Sixteenth and Eighteenth Streets.....	350	10	117.90	519.19		637.09
179	Seventeenth Street NE., between Jackson Street and Fort Drive.....	352.1	12	133.39	547.24		680.63
180	Decatur Street, between Sixteenth and Blagden Avenue.....	519	12	190.67	513.26		703.93
181	Seventeenth Street NE., between Brentwood Road and Jackson Street.....	334.1	12	132.75	619.04		751.79
183	Girard Street, between Sherman Avenue and Eleventh Street.....	68	10	19.02	83.25	\$5.78	108.05
184	Q Street NW., between First and Second Streets.....	65	12	21.56	83.32		104.88
185	E Street SE., between Eleventh and Twelfth Streets.....	140.2	10	36.39	161.56	1.66	199.11
186	Rhode Island Avenue NE., west of Seventeenth Street.....	190	10	69.53	384.97		454.50
187	Hamlin Street NE., between Fifteenth and Sixteenth Streets.....	620	10	186.37	668.30		854.67
188	Fort Drive, between Brentwood Road and Seventeenth Street.....	390	10	123.16	386.74		509.90
189	Twentieth Street NE., between Jackson Street and Rhode Island Avenue.....	383.9	12	146.70	468.45	17.06	632.21
190	Irving Street, between Eighteenth and Twentieth Streets.....	510	10	154.97	485.16		640.13
191	Rhode Island Avenue, between Eighteenth and Twentieth Streets NE.....	529.9	10	164.16	594.62		758.78
193	Kearney Street NE., between Seventeenth and Eighteenth Streets.....	347	12	125.25	451.83	16.28	593.36
195	Jocelyn Street NW., west of Thirty-eighth Street.....	174.5	10	46.83	142.56		189.39
196	Butternut Street, between Fifth and Sixth Streets.....	274.3	10	89.74	321.84		411.58
197	Seventh Street NW., between Dahlia and Elder Streets.....	292	10	80.70	277.19		357.89
198	Twentieth Street NW., between Belmont Road and Biltmore Street.....	490	10	162.57	834.49		997.06
200	Alley of Square 3054.....	20	12	23.81	61.82		85.63
201	Thirteenth Street, between Crittenden Street and Iowa Avenue.....	29	10	8.05	34.50	7.45	50.00
202	Kennebec Street NW., between Thirty-eighth and Thirty-ninth Streets.....	425	10	127.45	489.47		616.92
203	Jocelyn Street NW., between Thirty-eighth and Thirty-ninth Streets.....	180	10	48.35	141.73		190.08
204	Kennedy Street NW., between Fourteenth and Sixteenth Streets.....	57.25 691.30	21 12	320.17	1,011.25		1,331.42
205	Sixteenth Street NW., between Kennedy and Longfellow Streets.....	498.2	12	194.60	661.94		856.54
206	Kennedy Place, west of Sixteenth Street.....	608.3	10	192.12	735.36		927.48
207	Longfellow Street, west of Sixteenth Street.....	474	10	140.49	491.30		631.79
208	Connecticut Avenue, between Livingstone and Morrison Streets.....	364	12	135.50	467.39	2.09	604.98
209	Kingman Place and Q Street NW.....	205.2	10	87.65	297.31	94.66	479.62
210	Fourth Street NE., Rhode Island Avenue, and Adams Street.....	177.3	12	72.66	203.56		276.22
211	Davenport Street, between Belt Road and De Russey Street.....	663.4	8	162.94	647.02		809.96
212	De Russey Street, between Davenport and Ellicott Streets.....	197.6	8	59.22	213.69		272.91
213	Alley of Square 103.....	135	10	35.33	148.54	93.15	277.02
214	Florida Avenue and First Street NE.....	118.6 36.4	12 10	66.14	176.00	18.54	290.68
215	Woodley Road and Twenty-eighth Street NW.....	320.3	24	295.05	304.01		599.06
216	Twenty-eighth Street, between Woodley Road and Cathedral Avenue.....	541.7	10	108.39	612.27		792.66

TABLE No. 3.—Statement of sewers laid under the appropriation for assessment and permit work (assessment system) fiscal year ended June 30, 1911—Continued.

Order No.	Location.	Length.	Size.	Cost of—			Total cost.
				Material.	Labor.	Repaving.	
		<i>Feet.</i>	<i>Inches.</i>				
217	Florida Avenue, between Thirteenth and Fourteenth Streets....	433.5	12	\$180.82	\$361.25	\$9.33	\$551.40
218	K Street SW., between Canal and South Capitol Streets.....	531.5	12	206.23	565.58	37.17	808.98
219	Morrison Street, west of Connecticut Avenue.....	231.6	10	60.63	240.25	42.92	343.80
220	Morris Road, east of Bryant Place..	100	12	34.37	152.55		186.92
221	Sixteenth Street NW., between Newton and Monroe Streets.....	100.5	10	28.19	127.28	2.25	157.72
222	Wisconsin Avenue, between Davenport and Chesapeake Streets.....	82.7	10	43.01	147.49		190.50
223	B Street SE., between Eleventh and Twelfth Streets.....	106.3	12	52.55	125.48		178.03
224	Wisconsin Avenue south of Macomb Street.....	89	8	31.73	109.86		141.59
225	Kentucky and South Carolina Avenues.....	338.3	18	290.63	656.65		947.28
227	Upshur Street, east of Seventh.....	173.7	12	14.00	64.13		78.13
228	Crescent Place, between Sixteenth and Seventeenth Streets.....	50	10				
229	Seventeenth Street, between Crescent Place and Kalorama Road....	388.9	10	141.83	553.29		695.12
230	Nineteenth Street NW., between Lamont Street and Park Road....	432.4	18	255.79	573.05		828.84
231	Georgia Avenue, between Allison and Buchanan Streets.....	291.5	12	118.20	359.96		478.16
232	Aspen Street and Laurel Avenue....	305	12	113.08	501.38		614.46
233	Connecticut Avenue, between Jocelyn and Jenifer Streets.....	685.25	10	210.42	594.21		804.63
234	Connecticut Avenue, between Keokuk and Kanawha Streets.....	179.9	10	64.97	146.56		211.53
235	Kanawha Street, between Connecticut Ave. and Thirty-eighth Street..	279.6	12	104.10	324.19		428.29
236	Connecticut Avenue, between Huntington and Ingomar Streets.....	370	10	111.20	322.96		434.16
237	Connecticut Avenue, between Kanawha and Jocelyn Streets.....	270.3	15	132.59	367.00		499.59
238	Connecticut Avenue, between Ingomar and Jenifer Streets.....	253.5	12	99.54	221.68		321.22
240	Ingomar Street, between Connecticut Avenue and Thirty-eighth Street..	265.7	15	126.69	374.94		501.63
241	Ingomar Street, between Thirty-eighth Street and Reno Road.....	760.95	12	257.52	856.86		1,114.38
242	Jenifer Street, between Connecticut Avenue and Thirty-eighth Street..	634.35	10	199.86	521.99		721.85
243	Jocelyn Street, between Connecticut Avenue and Thirty-eighth Street..	651	12	205.22	556.44		761.66
244	Seventh Street NW., between Elder and Dahlia Streets.....	470	10	141.24	315.42		456.66
245	Spring Road, between Fourteenth Street and Holmead Road.....	55	10	16.13	39.01		55.14
246	Spring Road, between Thirteenth Street and Holmead Place.....	356	12	160.38	353.95		514.33
247	Spring Road, between Eleventh and Thirteenth Streets.....	56	10	38.22	74.23		112.45
248	Summit Place and Adams Mill Road..	113	10	47.06	125.97		173.03
249	Thirty-eighth Street, between Jenifer and Huntington Streets.....	65	8	14.49	70.21		84.70
250	U Street NW., between Fifteenth and Sixteenth Streets.....	268.6	10	81.48	259.12		340.60
251	Thirty-ninth Street, between Jocelyn and Jenifer Streets.....	39.3	12	14.04	42.66	10.30	67.00
252	Thirty-ninth Street, between Keokuk and Kanawha Streets, etc.....	495	10	143.06	401.60		544.66
253	Thirty-ninth Street, between Kanawha and Jocelyn Streets, etc.....	556	10	171.49	481.07		652.56
254	Rhode Island Avenue, east of Third Street.....	601	10	188.58	519.71		708.29
255	Alley of square 377.....	84.8	12	48.16	92.79	1.84	142.79
256	Allison Street, Georgia Avenue, and Ninth Street.....	105.2	15	84.01	152.55		236.56
257	Alley of square 2893.....	220.5	10	92.87	221.98	2.63	317.48
260	Warder Street, between Lamont Street and Park Road.....	50.2	10	14.82	34.59		49.41
		333.5	10	89.75	255.66	3.82	349.23

TABLE NO. 3.—Statement of sewers laid under the appropriation for assessment and permit work (assessment system) fiscal year ended June 30, 1911—Continued.

Order No.	Location.	Length.	Size.	Cost of—			Total cost.
				Material.	Labor.	Repaving.	
		<i>Feet.</i>	<i>Inches.</i>				
264	Foxhall Road, between Conduit Road and P Street.....	400	12	\$165.98	\$472.79	\$3.81	\$642.58
265	Foxhall Road, between Conduit Road and P Street.....	399	12	145.37	473.53	.....	618.90
266	Pennsylvania Avenue, between Twenty-fifth and Twenty-sixth Streets NW.....	37	12	13.02	31.75	3.58	48.35
268	C Street SW., between Delaware Avenue and South Capitol Street.....	73 232	12 10	108.60	257.95	.....	366.55
272	Seventh Street NW., between Taylor and Upshur Streets.....	220	10	60.82	172.53	.....	233.35
273	Second Street SE., between North Carolina Avenue and E Street.....	45	12	15.54	48.15	.....	63.69
274	K Street SE., between Fourteenth and Fifteenth Streets ¹	42	12	29.82	152.31	.....	182.13
275	Eighteenth Street NE., between Rosedale and E Streets.....	20	12	7.36	20.56	.....	27.92
277	W Place, between Hall Place and Wisconsin Avenue ¹	276	10	106.40	324.22	.....	430.62
278	Kenyon Street between Adams Mill Road and Nineteenth Street ¹	385.5	21	284.35	564.35	.....	848.70
279	Nineteenth Street, between Kenyon and Lamont Streets ¹	332.8 307	18 21	411.95	802.35	.....	1,214.30
280	Adams Mill Road, between Irving and Kenyon Streets ¹.....	.....	.....	.....	17.50	.....	17.50
281	Galen Street, east of Green Street.....	18	21	18.15	40.19	.....	58.34
282	F Street NW., between Ninth and Tenth Streets.....	112	15	48.59	193.28	.....	241.87
283	W Place, between Hall Place and Observatory Place ¹	185	10	50.77	195.58	.....	246.35
Total.....		48,273.37	.....	18,214.89	53,731.99	1,033.10	72,979.98

¹ Work completed in fiscal year 1912.

TABLE NO. 4.—Statement of sewers laid under miscellaneous trust fund deposits, fiscal year ended June 30, 1911.

Job No.	Location.	Length.	Size.	Remarks.	Amount of deposit.	Cost of work.	Amount returned.	For whom done.
1000	N Street NW, between Eleventh and Twelfth Streets 1	<i>Feet.</i>	<i>Inches.</i>		\$150.00	\$120.30	\$29.70	A. Samaha.
1001	Kanawha Street NW, between Connecticut Avenue and Thirty-seventh Street.	105 29	8 10		35.00	35.00		A. E. Walker.
1002	Line of Nebraska Avenue, Pleasant Drive to Connecticut Avenue.			Filling trench surface.	100.00	40.44	59.56	T. J. Fisher & Co.
1003	Florida Avenue and Fourth Street NE.			2 basins rebuilt.	(2)	319.20		Capital Traction Co.
1004	I Street west of Twenty-second Street NW.	153	12		775.77	775.77		G. O. Totten, Jr.
1005	Connecticut Avenue NW, between Kokuk and Legation Streets.			Building concrete piles under sewer.	119.61	116.49	3.12	D. J. Howell.
1006	Alley of Square 408			Branch pipe laid.	25.00	5.25	19.75	J. Wenig.
1007	Ninth Street and Louisiana Avenue NW.	57.2	48 x 48		690.54	690.54		Washington Railway & Electric Co.
1008	Second Street south of Delaware Avenue SW.	12	8		20.00	18.17	1.83	M. Shapiro.
1009	Thirtieth Street N.E., north of Evaris Street.	130	6		120.00	104.54	15.46	R. H. Johnson.
1010	Alley of Square 70.	55	8		90.00	85.61	4.39	C. W. Buchler.
1011	Alley of Square 2669	148	8		195.88	195.88		W. G. Guss.
1012	Thirtieth and Farragut Streets.			2 basins built.	123.94	123.94		D. J. Howell.
1013	Thirtieth and Fourteenth, Gallatin and Farragut Streets NW.			8 basins built.	490.00	386.20	93.80	Do.
1014	Front of 621 Elliot Street NE.			1 branch pipe laid.	13.00	8.39	6.61	W. T. Powell.
1016	Bladensburg Road north and south of Pennsylvania Railroad Co. crossing.			142.2 feet of 6-foot D-shaped culvert.	(?)	1,406.72		Washington, Spa Spring & Gretta R. Co.
1017								Washington Ry. and Electric Co.
1018	Alley of Square 250			1 branch pipe laid.	15.00	8.10	6.90	S. S. Stedid & Bro. Co.
1019	Monroe Street between Michigan Avenue and Twelfth Street.			6 manholes adjusted.	(?)	73.02		Washington Ry. and Electric Co.
1020	Thirty-eighth Street between Jenifer and Kokuk Streets NW.	730	10		1,600.00	986.34		T. J. Fisher & Co.
1021	Jenifer Street between Thirty-eighth and Kokuk Streets NW.	471.6	10		30.00	503.53	70.13	Washington Ry. & Electric Co.
1022	Twelfth and Monroe Streets NE.			6 basins rebuilt; 5 basins abandoned.	(?)	233.54		Washington Hotel Co.
1023	Alley of Square 630	16.5	10	Sewer connection.	75.00	24.15	50.85	J. S. Graver.
1024	Allison Street between Georgia and Iowa Avenues.				28.00	25.67	2.33	
1025	Massachusetts Avenue NW, between Seventeenth and Eighteenth Streets	597	12		2,000.00	1,813.36	186.64	T. W. Page.
1026	Do.							I. Donnelly.
1027	North Capitol Street between G and H Streets.	13.4	21		325.00	219.97		Georgetown Dock & Elevator Co.
1028	K Street NW, west of Thirtieth Street.	120	10	1 gutter drop built.	(?)	211.63		Do.
1029	Thirtieth Street NW, between K Street and Potomac River.	40	21	2 basins built.	(?)	261.56		National Laundry Co.
1030	Alley of Square 620	63	10		155.00	147.36	7.64	J. S. Graver.
1031	Allison Street NW, west of Eighth Street.	12	6	1 branch pipe laid.	20.00	11.45	8.55	P. Hall.
1032	Florida Avenue and Seventh Street NE.	63	10		20.00	18.77	1.23	N. T. & W. M. Engel.
1033	Alley of Square 724.	59.6	10		100.00	93.77	6.23	R. J. Beall Construction Co.
1034	Eleventh Street and Garfield Hospital grounds.			3 basins built.	185.00	177.45	7.55	
1035	Front of 1229 Franklin Street NE.			1 branch pipe laid.	15.04	5.09	9.91	C. J. Purcell.

1036	Dahlia Street between Eighth Street and Georgia Avenue.....	93.8	15	15	Culvert built also. 1 branch pipe laid.....	220.00	220.00	.....	L. P. Shoemaker.
1037	Front of Lot 25, Square 1066.....	.....	.....	.....	.....	15.00	5.15	9.85	A. R. Townsend.
1038	Alley of Square 3688..... NW, between Eleventh and Twelfth Streets.....	60	8	10	.....	50.00	41.85	8.15	J. L. Pugh.
1039	Pennsylvania and H Streets SE.....	27	10	10	.....	150.00	89.00	.....	Fuller Construction Co.
1040	Robert Street east of Georgia Avenue.....	57.5	6	6	.....	110.00	90.73	19.27	J. E. Hutchinson.
1041	Robert Street NW, between Allison and Buchanan Streets.....	36.8	8	8	.....	75.00	46.34	28.66	J. Smith.
1042	Eighth Street NW, between Allison and Buchanan Streets.....	168	6	6	.....	225.00	122.28	102.72	Thrall Building Co.
1043	Tenth Street NW, between C and D Streets.....	25	10	10	.....	50.00	41.33	8.67	C. A. Didden & Son.
1044	Alley of Square 2621.....	8	10	10	.....	20.00	19.93	.07	H. Caldwell.
1045	Second Street NE, between Parker and K Streets.....	249	12	12	.....	.....	336.09	.....	Baltimore & Ohio R. Co.
1046	Huntington Street between Connecticut Avenue and Thirty-eighth Street.....	873.1	12	12	.....	1,400.00	1,276.61	123.39	T. J. Fisher & Co.
1047	Connecticut Avenue between Huntington and Harrison Streets.....	298.6	15	15	.....	590.00	383.54	206.46	Do.
1048	E Street SE, between Second and Third Streets.....	6	12	12	.....	16.00	15.06	.94	H. Wardman.
1049	Huntington Street between Reno Road and Thirty-ninth Street.....	308.3	10	10	.....	425.00	316.07	108.93	H. E. Doyle.
1050	Huntington Street between Reno Road and Belt Roads.....	355.3	10	10	.....	500.00	378.58	121.42	T. J. Fisher & Co.
1051	Front of 1331 F Street NW.....	.....	.....	.....	Pumped out cellar.....	25.00	15.51	9.49	J. F. Tilley.
1052	Front of 1923 I Street NW.....	6	10	10	.....	(?)	6.88	.....	E. P. Brink.
1053	Warrior Street between Lamont Street and Park Road.....	100	10	10	.....	160.00	119.62	40.38	W. L. Stewart.
1054	Alley of Square 147.....	25	8	8	.....	44.36	44.36	.....	Wood, Donn & Dem- ing.
1055	Kentucky Avenue SE, between B Street and Lincoln Park.....	47	8	8	.....	75.00	49.73	25.27	Sloan Construction Co.
1056	E Street NE, between Tennessee Avenue and Fourteenth Street.....	48	10	10	.....	80.00	71.45	8.55	W. Conrad, agent.
1057	Alley of Square 208.....	.....	.....	.....	.....	55.00	20.10	34.90	F. V. Killian.
1058	Water Street at foot of O Street SW.....	60	8	8	.....	120.00	85.16	34.84	A. L. Smith & Co.
1059	Second Street NE, between U and V Streets.....	108	12	12	.....	550.00	248.45	.....	(B. F. Smith Construc- tion Co.
1060	Alley of Square 3051.....	36	10	10	.....	15.00	12.12	2.88	Zepp Bros.
1061	Thirteenth Street NW, between Fairmont and Euclid.....	55.3	12	12	.....	200.00	82.38	.....	C. W. King.
1062	Alley of Square 345.....	137	12	12	.....	325.00	251.69	.....	Gormley-Poynton Co.
1063	.....	6,062.3	.....	.....	.....	13,309.10	13,952.18	1,620.28	.....

1 Work begun fiscal year 1910.

2 General deposit.

TABLE NO. 5.—Statement of sewers laid under the appropriation for "main and pipe sewers," fiscal year ended June 30, 1911.

Order No.	Location.	Length.	Size.	Basins built.	Cost of—			Total cost.
					Material.	Labor.	Repaving.	
		Feet.	Inches.					
500	Third and S Streets NW., northeast corner			1	\$42.03	\$108.06		\$150.09
501	Q Street NW., at Eleventh and Twelfth Streets ¹			2	38.13	71.12		109.25
502	Little B Street NW., west of Tenth Street			1	27.95	60.26		88.21
503	Thomas Circle, between Massachusetts Avenue and Fourteenth Street			1	37.78	112.11		149.89
504	Second and W Streets NW., northwest corner			1	26.39	53.18		79.57
505	Fourteenth Street and Thomas Circle NW			1	20.73	48.45		69.18
506	Alley of square 453			1	8.29	8.63		16.92
507	Alley of square 2854	239	10	1	84.02	193.17		277.19
508	North Capitol and Patterson Streets			1	14.15	37.16	\$4.16	55.47
509	Fourteenth and B Streets SE			1	20.91	52.18		73.09
510	N Street and Kirby Street, near New York Avenue			2	48.17	105.72		153.89
511	North Capitol Street, between D and E Streets	492.5	15		258.12	898.89		1,157.01
512	Twenty-second and Water Streets NW			1	14.37	44.61		58.98
514	Georgia Avenue, north of Quebec Place			1	21.06	42.87		63.93
515	Thirty-first Street NW., between K Street and river				319.91	611.67	19.03	950.61
516	Alley of square 517			1	18.64	44.34		62.98
517	Fifteenth and Harvard Streets NW. ²				6.46	20.88		27.34
518	Four-and-a-half Street and Maine Avenue SW			1	22.51	41.01		63.52
519	L Street, east of West Virginia Avenue NE			1	47.77	108.49		156.26
521	Twelfth and I Streets SE			1	22.12	31.79		53.91
522	Parkwood and Holmead Place			1	23.99	48.37		72.36
523	G Street and New Jersey Avenue			1	32.89	80.36		113.25
524	Alley of Square 512			1	16.23	35.49		51.72
525	Neal Place, between Fourth and Fifth Streets			3	46.66	118.47		165.13
526	Third Street NW., between G Street and Massachusetts Avenue			1	20.08	51.71		71.79
527	Third Street and Massachusetts Avenue NW			2	35.78	91.20		126.98
528	Sixteenth and Rosedale Streets NE			1	22.06	44.71		66.77
529	Ninth Street NW., between New York Avenue and I Street ³				129.19	793.07	450.62	1,372.88
530	Thirteenth and Newton Streets NE			2	32.65	63.95		96.60
531	Second Street NW., between E and F Streets	269.7	12		137.24	390.59		527.83
532	K Street NE., at Twelfth Street			1	26.06	73.74		99.80
533	Twenty-second and K Streets NW			1	41.17	87.42		128.59
534	Seventeenth and Kilbourne Streets NW			1	20.09	54.68	4.42	79.19
535	Seventeenth and Lamont Streets			1	49.90	132.62	21.77	204.29
536	Bladensburg Road and Meigs Place			2	58.10	204.13		262.23
537	Lexington Place, at Sixth and Seventh Streets			2	41.59	77.62	28.29	147.50
538	Thirtieth Street NW, between K Street and river	394.5	21		301.53	720.07	23.92	1,045.52
539	Twenty-ninth and K Streets and Thirtieth Street between K and river	200	21	2	226.99	611.17	11.75	849.91
540	Fourth and Rhode Island Avenue NE			1	16.95	38.64		55.59

¹ Basins rebuilt.² Basin connection constructed.³ Railroad tracks raised to grade.

TABLE NO. 5.—Statement of sewers laid under the appropriation for "main and pipe sewers," fiscal year ended June 30, 1911—Continued.

Order No.	Location.	Length.	Size.	Basins built.	Cost of—			Total cost.
					Material.	Labor.	Repaving.	
		<i>Feet.</i>	<i>Inches.</i>					
541	North Capitol Street between M Street and New York Avenue.....	176.9	12	.....	\$74.29	\$212.07	\$24.98	\$311.34
542	East Side Rock Creek between M Street and Pennsylvania Avenue.....	47	24	.....	66.22	177.01	.....	243.23
543	Second and California Streets NE. ¹.....	.....	.....	.....	8.43	9.78	.....	18.21
544	Fourteenth Street NE. south of A Street.....	.....	.....	1	24.32	60.31	.....	84.63
545	Q Street NW. between Thirtieth and Thirty-first Streets.	138.6	12	.....	65.10	250.13	90.43	405.66
546	L Street SW. between First and South Capitol Streets ¹.....	.....	.....	.....	7.66	13.06	.....	20.72
547	Third Street SW., at M and N Streets.....	.....	.....	2	54.41	133.81	46.55	234.77
551	N Street NW. east of Twentieth Street ¹.....	.....	.....	.....	10.14	13.87	.....	24.01
552	Alley of Square 373.....	428.5	12	.....	215.55	671.27	7.78	894.60
553	Twelfth Street, north of I Street NW. ¹.....	.....	.....	.....	15.22	34.37	7.26	56.85
554	Eighth Street and Florida Avenue NW.....	.....	.....	1	18.60	51.49	.....	70.09
555	Twenty-seventh and G Streets NW.....	.....	.....	.....	49.04	316.43	.....	365.47
559	Alley of Square 303 ²	50	12	.....	56.33	129.38	58.49	244.25
561	G Street NW. between Ninth and Tenth Streets.....	156.1	12	.....	74.03	275.50	.....	349.53
562	F Street NE. between Fourth and Fifth Streets.....	235	12	.....	95.08	277.20	25.04	397.32
563	Twenty-third and Water Streets NW.....	20	6	.....	9.56	267.00	.....	276.56
564	Fifth and Quincy Streets NW.....	.....	.....	1	20.92	45.20	.....	66.12
565	Seventh and Quincy Sts. NW.....	.....	.....	1	24.42	64.49	.....	88.91
566	Montello Avenue and Mount Olivet Road.....	.....	.....	1	23.62	45.91	.....	69.53
567	Alley of Square 623.....	.....	.....	.....	15.21	23.00	1.70	39.91
569	Eighth Street SE., between A and East Capitol Streets.....	95.5	12	.....	36.88	190.22	9.89	236.99
570	Fifth and Quincy Streets NW.....	.....	.....	1	22.26	48.01	.....	70.27
571	Second Street NE., between T and U Streets.....	.....	.....	.....	43.61	110.64	.....	154.25
572	Florida Avenue NW. between Fourteenth and Fifteenth Streets.....	617	12	.....	254.93	623.79	.....	878.72
573	Seventh and Quincy Streets NW.....	.....	.....	1	28.16	54.97	.....	83.13
574	F Street NE., between Third and Fourth Streets.....	257.5	12	.....	207.40	671.82	48.38	927.60
575	Fifth and Hobart Streets NW.....	.....	.....	2	49.51	73.88	.....	123.39
576	Columbia Road, between Georgia Avenue and Warder Street.....	.....	.....	2	43.47	69.37	.....	112.84
577	Madison Street and Colorado Avenue.....	.....	.....	1	21.87	55.82	.....	77.69
578	Pennsylvania Avenue and Madison Street.....	.....	.....	1	78.35	220.58	.....	298.93
579	B Street NW., between Eighteenth and Twenty-fourth Streets.....	85.9	24	.....	97.56	152.82	.....	250.38
581	Florida Avenue NW., west of Fourth Street.....	43.2	12	.....	30.30	86.62	22.75	139.67
582	Fourth and Q Streets NW.....	.....	.....	1	25.76	32.44	.....	58.20
583	Longfellow Street and Colorado Avenue.....	.....	.....	2	37.32	74.49	.....	111.81
584	Holmead Place and Spring Road NW.....	.....	.....	1	15.20	44.90	.....	60.10
585	Georgia Avenue and Gallatin Street.....	.....	.....	2	32.88	94.39	.....	127.27
586	Alley of Square 486.....	110	12	.....	59.06	142.96	.....	202.02
587	Thirteenth and E Streets NW.....	.....	.....	1	18.04	87.78	.....	105.82
588	Second and Third Streets NE., between East Capitol Street and Maryland Avenue.....	.....	.....	4	85.41	150.08	.....	235.49

¹ Manholes raised to grade.² Sewer replaced.

TABLE NO. 5.—Statement of sewers laid under the appropriation for "main and pipe sewers," fiscal year ended June 30, 1911—Continued.

Order No.	Location.	Length.	Size.	Basins built.	Cost of—			Total cost.
					Material.	Labor.	Repaving.	
		<i>Feet.</i>	<i>Inches.</i>					
589	B Street SE., between Twenty-first and Twenty-second Streets.....	197.6	12	.....	\$267.27	\$744.83	.....	\$1,012.10
591	Front of 1010 D Street SW.....			.....	3.25	3.28	.....	6.53
592	Alley of Square 373.....	112.2	12	.....	43.19	154.89	.....	198.08
593	Lamont Street at alley of Square 3040.....			1	22.27	61.27	.....	83.54
594	Fourteenth and Longfellow Streets NW.....			2	68.80	184.38	.....	253.18
595	Pennsylvania Avenue, Seventeenth Street, and Jackson Place NW.....	225	24	.....	271.60	598.93	.....	870.53
596	Pennsylvania Avenue, between Seventeenth Street and Jackson Place NW.....	196	24	}.....	128.53	512.95	.....	641.48
597	Twenty-first Street NW., between K and L Streets.....	13	18					
598	Alley of Square 4065.....			1	22.38	27.37	.....	27.37
599	Perry Street and Holmead Place NW.....			1	13.37	28.45	.....	50.83
600	Water and N Streets SW.....	3	24	.....	9.48	48.19	.....	61.56
601	Hobart and Park Places NW.....			1	16.09	49.25	.....	58.73
602	.....do.....			1	35.12	56.19	.....	72.28
603	Alley of Square 378.....			.....	2.01	102.12	.....	137.24
604	Nineteenth and L Streets NW.....			.....	7.84	6.00	.....	8.01
605	Hobart Place east of Fifth Street NW.....			1	45.47	32.38	.....	40.22
607	Line of H Street east of South Capitol Street.....			.....		68.12	.....	113.59
608	Foot of First Street SE.....			.....		2.00	.....	2.00
				.....		142.04	.....	142.04
	Total.....	4,803.75	.....	76	5,451.45	15,292.10	\$907.21	21,650.76

TABLE No. 6.—Statement of sewers laid under the appropriation for suburban sewers, fiscal year ended June 30, 1911.

Order No.	Location.	Length (feet).	Size (feet and inches.)	Cost of—		Total cost.
				Material.	Labor.	
800	Right of way through Parcel 39/16 and S Street NW., between Wisconsin Avenue and Thirty-second Street.	557	8"	\$159.16	\$462.00	\$621.16
801	Thirty-first Street NE., between N Street and Maryland Avenue.	194.6	2' x 2' 6"	242.86	651.14	894.00
801A	Thirty-first Street NE., between N Street and Maryland Avenue.	194.6	2' x 2' 6"	242.86	651.14	894.00
801B	Thirty-first Street NE., between N Street and Maryland Avenue.	75.15	4' 3"	242.86	651.14	894.00
801C	Thirty-first Street NE., between N Street, Maryland Avenue, etc.	23.04	4' 6"	242.86	651.16	894.01
802	Piney Branch Valley west of Sixteenth Street.	8.00	4' x 4' 6"	4.36	27.73	32.09
803	East bank Rock Creek, between P Street and Massachusetts Avenue.				117.99	117.99
805	Twentieth Street NE., between Lawrence and Monroe Streets.	357.8	18"	231.20	480.70	711.90
806	Nebraska Avenue between Connecticut Avenue and Fessenden Street.	311.1	18"	245.40	730.50	975.90
806A	Nebraska Avenue between Connecticut Avenue and Fessenden Street.	311	18"	236.40	733.50	969.90
807	Arkansas Avenue south of Farragut Street.			14.94	26.01	40.95
808	Connecticut Avenue between Woodley Road and Cathedral Avenue.	438.7	12"	110.59	383.05	493.64
809	Connecticut Avenue between Woodley Road and Cathedral Avenue.	496.3	12"	210.30	375.35	585.65
810	Nineteenth Street SE., between U Street and Good Hope Road.	486.94	18"	164.41	467.27	631.68
811	Columbia Road NW. and alley, square 9515	122.2	18"	155.46	294.09	450.15
812	Klingie Road and Adams Mill Road.	206.2	12"			
813	Mount Pleasant and Irving Streets NW.	193.2	12"	263.49	528.40	791.89
814	Alley of square 2900	293.7	12"	144.81	413.58	558.39
815	Arkansas and Georgia Avenues NW.	100	12"	33.12	97.46	130.58
816	Rock Creek Park at Broad Branch and Soapstone Branch.	589	21"	452.81	930.40	1,383.21
817	Connecticut Avenue between Nebraska Avenue and Harr. Street.			4.50	2.00	6.50
818	Piney Branch Valley west of Sixteenth Street.	461.85	15"	231.67	492.62	724.29
819	Piney Branch Valley west of Sixteenth Street.	172	3'	405.48	1,035.02	2,040.50
820	Piney Branch Valley west of Sixteenth Street.	200	3'	334.95	1,018.40	1,353.35
821	Piney Branch Valley west of Sixteenth Street.	60	4 x 6'	205.99	907.30	1,013.29
822	Vinny's Chain Bridge.			19.98	82.60	102.58
823	Blair Road between Geranium and Holly Streets.	338.6	8"	87.73	515.37	603.10
824	Blair Road between Geranium and Holly Streets.	359	8"	89.89	346.00	435.89
825	Taylor Street between Seventh Street and New Hampshire Avenue.	304	12"	118.80	332.43	451.23
826	Line east side Interlocking sewer crossing Hickeys Run.	24	18"	50.15	161.20	211.35
827	W Street NW. between First and North Capitol Streets.	435	12"	181.16	659.02	840.18
1104	Twenty-eighth Street NE. between K Street and Cottage Place.	449.41	2' x 2' 6"	300.20	700.00	1,000.20
1104A	Twenty-eighth Street NE., between K Street and Cottage Place.	450	2' x 2' 6"	325.00	857.49	1,182.49
	Total.	8,781.49		5,835.98	16,337.01	22,172.99

1 Work completed fiscal year 1912.

TABLE NO. 7.—Statement of work done under miscellaneous appropriations, fiscal year ended June 30, 1911.

Order No.	Location.	Sewers laid.		Remarks.	Cost of—			Total cost.	Appropriations.
		Length.	Size.		Material.	Labor.	Contingencies.		
		Feet.	Inches.						
1100	Third Street NW, between D and H Streets 1.			Basin rebuilt.	\$84.67	\$310.19	\$19.75	\$414.61	Repairs streets, 1911.
1101	Sixteenth Street NW, south from B Street 1.			Outlet sewer.	19.72	72.47	3.26	95.45	Swimming pools, bathing beach.
1102	Fleventh and P Streets NW.			2 basins rebuilt.		71.06	5.34	112.21	Repairs streets, 1911.
1103	Q Street NW, at Eleventh and Twelfth Streets.			do.		65.05	5.18	108.77	Do.
1104	Vicinity Thomas Circle 1.			2 new basins.	79.07	129.43	10.08	211.58	Do.
1105	North Capitol and D Streets.			3 new basins.	70.20	126.71		196.91	Eliminating grade crossings.
1106				Hauling second-quality pipe.		35.75		35.75	Main and pipe.
1107				1 basin rebuilt.	12.98	37.11	2.50	52.59	Southeast schedule, 1911.
1108	Fourteenth and B Streets SE.			do.	17.24	39.02	2.81	59.07	Repairs streets, 1911.
1109	North Capitol and M Streets.			1 new basin.	31.91	53.71	4.28	89.90	Do.
1110	North Capitol and N Streets.			2 new basins.	81.22	137.56	10.94	229.72	Do.
1111	B Street NW, at Sixteenth and Seventeenth Streets.			do.	69.89	28.31	4.91	103.11	Do.
1112	do.			1 basin rebuilt.	18.77	53.67	3.62	76.06	Do.
1113	Virginia Avenue and B Streets.			1 basin rebuilt.	48.20	96.50	7.24	151.94	Paving D Street NW.
1114	D Street, between Seventh and Eighth Streets.			1 basin adjusted.		3.38	1.17	3.55	Repairs streets, 1911.
1115	Missouri Avenue, at Sixth Street NW.			1 basin rebuilt.	17.54	44.53	3.10	65.14	Do.
1116	Eleventh and F Streets NW.			1 basin rebuilt.	1.62	14.59	.81	17.02	Do.
1117	F Street NW, between Ninth and Fourteenth Streets.			2 basins adjusted.	9.30	14.00	1.17	24.47	Grading Rhode Island Avenue.
1118	Third and W Streets NE.			1 manhole adjusted.					Repairs streets, 1911.
1119	Sixth Street NW, at Trumbull Street.			do.	5.49	11.86	.87	18.22	Repairs streets, 1911.
1120	Twelfth and Florida Avenue NW.			1 basin rebuilt.	17.16	44.24	3.07	64.47	Northeast schedule, 1911.
1121	Delaware Avenue and I Street NW.			1 new basin.	25.91	50.12	3.80	79.83	Southeast schedule, 1911.
1122	Twelfth Street SE, at G and H Streets.			3 basins rebuilt.	54.14	109.14	8.16	171.44	Southeast schedule, 1911.
1123	Nichols Avenue and W Street SE.			2 basins rebuilt.	16.05	85.76	5.09	106.90	Repairs streets, 1911.
1124	Second Street NW, between Massachusetts Avenue and G Street.			7 basins rebuilt.	105.04	255.03	18.00	378.07	Do.
1125	Monroe Street NW, between Thirteenth and Fourteenth Streets.			1 basin adjusted.	1.81	10.69	.63	13.13	Do.
1126	Eleventh and F Streets NW.			do.	.81	7.32	.41	8.54	Do.
1127	Massachusetts Avenue and New Jersey Avenue.			2 basins rebuilt.	56.86	122.62	8.97	188.45	Do.
1128	North Capitol and G Streets.			2 basins adjusted.	224.08	13.19	1.14	23.97	Eliminating grade crossings.
1129	Second Street NW, between D and H Streets.			5 basins rebuilt.		573.34	39.87	837.29	Repairs streets, 1911.
1130	First Street NE, vicinity of Union Station.	314.85	12	2 new basins.	202.49	414.43	30.35	647.27	Eliminating grade crossings.
1131	Front of Municipal Building.	54.15	15	Roped parking.		13.14	.65	13.80	Maintenance Municipal Building.
1132	Pennsylvania Avenue NW, at Twenty-second Street.			1 new basin.	22.52	42.11	3.23	67.86	Repairs streets, 1911.
1133	New Hampshire Avenue and Twenty-second Street.			1 basin rebuilt.	19.32	47.53	3.54	70.19	Do.

[illegible]

Work started in fiscal year 1910.

2 Work completed in fiscal year 1912.

TABLE No. 8.—*Sewage-disposal system, District of Columbia, construction.*

Contractor job No.	Contractor or foreman.	Location.	Character of work.	Payments on con- tracts.	Materials.		Cost of—				Total cost.	Com- pleted.	Appropriation.
					Charged to con- tractor.	Not charged to con- tractor.	Inspection.	Material.	Labor.	Repairs to pave- ments.			
4376	W. F. Brenizer Co.	Under Rhode Is- land Avenue di- vide.	Section East side interceptor.	\$43, 106.34	\$46. 11	\$4, 982. 02	\$2, 058. 25	.....	.....	.....	\$50, 192.72	Yes...	East side in tercep- tor, boundary to Brookland.
4761	E. G. Gummel.	Valley of Rock Creek, between P Street and Massachusetts Avenue.	Rock Creek main interceptor.	13, 288. 51	5, 618. 10	.....	522. 00	.....	.....	.....	.....	No....	Rock Creek main interceptor, P Street to Massa- chusetts Avenue.
1143	.....	Sewage pumping station.	Inclosing wall.....	.....	.....	.....	.....	.....	.....	.....	.....	No....	Unused balances, Sewage-disposal system.
1144	.....	.....do.....	Tiling dynamo room floor.	.....	.....	.....	.....	\$167. 68	\$101. 46	.....	269. 14	Yes...	Do.
Total.....				56, 394. 85	5, 664. 02	4, 982. 02	2, 580. 25	167. 68	101. 46	.....	50, 461.86		

TABLE NO. 9.—*Number of inspectors and other employees of sewer division temporarily employed, and the appropriations from which paid, fiscal year ended June 30, 1911.*

[This table includes the cost of 1 employee of record room, 1 from disbursing office, 1 from the surveyor's office, carried on the rolls for 4 months each, also 4 employees of property office, carried on the rolls for 3 months each.]

Appropriations.	Inspectors.	Overseers.	Other employees.
Construction, sewerage system:			
Main and pipe sewers.....	\$1,476.50	\$861.69	\$1,616.62
Suburban sewers.....	2,250.50	539.29	1,682.75
Assessment and permit work.....	920.00	1,494.21	1,275.50
Elimination of grade crossings.....		8.75	
Improvements and repairs, District of Columbia, repairs to streets, etc.....		340.00	
Miscellaneous trust fund deposits, District of Columbia.....		332.88	
Workhouse, District of Columbia, 1911-12, construction.....		12.25	
Construction, sewage-disposal system:			
Unused balances.....	225.00		39.00
East side interceptor to Brookland.....	351.00		
Rock Creek main interceptor.....	694.00		92.75
Anacostia main interceptor.....			92.75
Maintenance:			
Cleaning and repairing.....	1,017.50	385.43	506.63
Maintenance and operation.....	889.50		198.00
	7,824.00	4,004.50	5,504.00

TABLE NO. 10.—*Average cost of labor and material of pipe sewers (per linear foot) and storm-water receiving basins constructed by day labor.*

Size of sewer.	Length.	Cost of—		Total.
		Labor.	Material.	
8-inch diameter.....	3,643.1	\$1.0128	\$0.2699	\$1.2827
10-inch diameter.....	20,216.2	1.0208	.3202	1.3408
12-inch diameter.....	18,419.4	1.1067	.3983	1.5055
15-inch diameter.....	3,784.4	1.3581	.5173	1.8754
18-inch diameter.....	1,101.2	1.642	.6692	2.3112
21-inch diameter.....	403.5	1.4982	.7496	2.2478
24-inch diameter.....	687.2	1.8177	1.077	2.8947
Basins (each including connections to sewer).....				61.3057

TABLE NO. 11.—*Average cost of pipe sewers for 10 years.*

Year.	8-inch diameter.		10-inch diameter.		12-inch diameter.		15-inch diameter.		18-inch diameter.		21-inch diameter.		24-inch diameter.	
	La- bor.	Ma- terial.	La- bor.	Ma- terial.	La- bor.	Ma- terial.	La- bor.	Ma- terial.	La- bor.	Ma- terial.	La- bor.	Ma- terial.	La- bor.	Ma- terial.
1902.....	\$0.83	\$0.32	\$0.97	\$0.41	\$1.04	\$0.46	\$1.46	\$0.62	\$1.74	\$0.78	\$1.91	\$0.96	\$2.43	\$1.23
1903.....	.80	.36	1.03	.53	1.09	.54	1.32	.73	1.52	.81	1.57	1.06	1.74	1.32
1904.....	.97	.36	.92	.55	1.17	.65	1.45	.81	1.61	.91	1.94	1.24	2.24	1.47
1905.....	.98	.38	.96	.55	1.19	.60	1.41	.77	1.45	.89	1.92	1.01	1.87	1.43
1906.....	.87	.33	1.19	.47	1.26	.54	1.41	.67	1.53	.78	1.88	.93	2.45	1.24
1907.....	1.42	.43	1.43	.48	1.30	.56	1.46	.70	1.82	.85	2.09	.98	2.78	1.26
1908.....	1.34	.42	1.26	.50	1.44	.61	1.69	.75	1.91	.90	1.74	1.14	3.65	1.50
1909.....	1.34	.36	1.16	.36	1.46	.46	1.59	.56	1.58	.62	1.67	1.07	1.91	1.18
1910.....	1.00	.29	.99	.35	1.12	.43	1.19	.52	1.49	.66	1.52	.85	1.72	1.14
1911.....	1.01	.27	1.02	.32	1.17	.40	1.36	.52	1.64	.67	1.50	.75	1.82	1.08

TABLE No. 12.—*Summary of sewerage system for 20 years.*

Fiscal year.	Total cost of sewerage system.	Cost of sewerage system for each year.	Total miles trunk sewers.	Total miles pipe sewers.	Annual cost of maintenance of sewerage system.	Cost of sewage-disposal system for each year.	Annual cost of maintenance of sewage-disposal system.
1892.....	\$7,842,721.62	\$219,000.00	67.16	227.60	\$43,000.00	.....	.....
1893.....	8,007,721.62	165,000.00	68.37	238.45	45,000.00	.....	.....
1894.....	8,298,931.62	291,210.00	71.32	250.13	45,000.00	\$86,704.34	.....
1895.....	8,476,431.62	177,500.00	74.48	260.20	45,000.00	86,961.74	.....
1896.....	8,661,731.62	185,300.00	77.65	270.28	45,000.00	60,836.57	.....
1897.....	8,901,731.62	240,000.00	81.36	284.06	50,000.00	126,572.97	.....
1898.....	9,047,731.62	146,000.00	83.92	298.91	50,000.00	201,218.32	.....
1899.....	9,183,731.62	136,000.00	85.65	307.36	50,000.00	227,759.75	.....
1900.....	9,309,731.62	126,000.00	88.30	317.20	50,000.00	203,761.05	.....
1901.....	9,515,731.62	206,000.00	90.89	327.86	50,000.00	343,865.52	.....
1902.....	9,696,731.62	181,000.00	93.49	338.13	58,000.00	228,554.36	.....
1903.....	9,817,731.62	121,000.00	96.31	351.73	58,000.00	288,554.54	.....
1904.....	9,940,731.62	123,000.00	99.12	357.70	58,000.00	180,203.32	.....
1905.....	10,040,881.62	100,150.00	103.21	365.60	58,000.00	637,450.69	.....
1906.....	10,128,881.62	88,000.00	109.09	375.26	42,000.00	706,514.55	.....
1907.....	10,363,881.62	235,000.00	112.20	389.24	38,000.00	\$37,285.00	.....
1908.....	10,536,681.62	172,800.00	113.94	407.24	44,500.00	35,625.00	.....
1909.....	10,688,681.62	152,000.00	117.24	424.02	45,000.00	79,119.62	.....
1910.....	10,860,556.62	171,000.00	119.20	448.78	48,500.00	63,742.43	.....
1911.....	11,204,188.79	343,632.17	122.78	469.42	50,000.00	50,597.31	58,000.00

NOTE.—Cost of sewage-disposal system to date, \$4,146,228.01.

TABLE No. 13.—*Conduits laid during fiscal year ended June 30, 1911.¹*

No. of duct.	Washington Railway & Electric Co.		Capital Traction Ry. Co.		Chesapeake & Potomac Telephone Co.		Postal Telegraph-Cable Co.		Total.	
	Conduit.	Duct.	Conduit.	Duct.	Conduit.	Duct.	Conduit.	Duct.	Conduit.	Duct.
1.....	<i>Feet.</i>	<i>Feet.</i>	<i>Feet.</i>	<i>Feet.</i>	<i>Feet.</i>	<i>Feet.</i>	<i>Feet.</i>	<i>Feet.</i>	<i>Feet.</i>	<i>Feet.</i>
2.....	5,271.7	5,271.7	.....	.....	2,764.3	2,764.3	530.5	530.5	8,566.5	8,566.5
3.....	1,009.2	2,018.4	.....	.....	13,849.8	27,699.6	.....	.....	14,859.0	29,718.0
4.....	.....	.....	.....	.....	46.0	138.0	.....	.....	46.0	138.0
6.....	41,589.8	166,359.2	.....	.....	4,690.0	18,760.0	.....	.....	46,279.8	185,119.2
8.....	14.0	84.0	853.5	5,121.0	2,745.0	16,470.0	.....	.....	3,612.5	21,675.0
10.....	7,736.0	61,894.4	.....	.....	6,137.0	49,096.0	.....	.....	13,873.0	110,990.4
12.....	.....	.....	.....	.....	6,415.5	64,155.0	.....	.....	6,415.5	64,155.0
14.....	407.5	4,890.0	.....	.....	2,750.8	33,009.6	.....	.....	3,158.3	37,899.6
16.....	.....	.....	.....	.....	2,430.8	34,031.2	.....	.....	2,430.8	34,031.2
18.....	.....	.....	.....	.....	1,123.5	17,976.0	.....	.....	1,123.5	17,976.0
20.....	.....	.....	60.0	1,200.0	1,870.0	33,660.0	.....	.....	1,870.0	33,660.0
Total...	56,028.2	240,517.7	913.5	6,321.0	44,822.7	297,759.7	530.5	530.5	102,294.9	545,128.9

¹ This table does not include 1,799 feet of United States Government pipe lines, nor 137 feet of United States Government conduit.TABLE No. 14.—*Gas mains laid during fiscal year ended June 30, 1911.*

Size of mains.	Washington Gas Light Co.	Georgetown Gas Light Co.	Total.
2-inch.....	<i>Linear feet.</i>	<i>Linear feet.</i>	<i>Linear feet.</i>
3-inch.....	.....	381.0	381.0
4-inch.....	21.0	.....	21.0
6-inch.....	15,125.5	1,783.5	16,909.0
8-inch.....	25,629.1	4,584.0	30,213.1
10-inch.....	.....	1,747.3	1,747.3
12-inch.....	.....	2,487.0	2,487.0
Total.....	7,416.5	.....	7,416.5
Total.....	48,192.1	10,982.8	59,174.9

TABLE NO. 15.—Summary of conduits laid to June 30, 1911.¹

No. of duct.	Washington Ry. & Electric Co.		Capital Traction Co.		Chesapeake & Potomac Telephone Co.		Western Union Telegraph Co.		Total.	
	Conduit.	Duct.	Conduit.	Duct.	Conduit.	Duct.	Conduit.	Duct.	Conduit.	Duct.
	<i>Feet.</i>	<i>Feet.</i>	<i>Feet.</i>	<i>Feet.</i>	<i>Feet.</i>	<i>Feet.</i>	<i>Feet.</i>	<i>Feet.</i>	<i>Feet.</i>	<i>Feet.</i>
1.....	52,232	52,232			44,013	44,013	41	41	96,286	96,286
2.....	134,187	268,374	15,742	31,484	224,304	448,607	1,911	3,822	376,144	752,287
3.....	236	708			5,640	16,920	6,940	20,820	12,816	38,448
4.....	377,262	1,509,047	18,295	73,180	162,748	650,992	7,295	29,180	565,600	2,262,399
5.....							4,177	20,885	4,177	20,885
6.....	50,152	300,912	8,174	49,041	93,099	558,594	4,232	25,392	155,657	933,939
7.....			29	203	82	574			111	777
8.....	81,500	652,006	8,047	64,376	51,763	414,104			141,310	1,130,486
9.....	7,288	65,592			114	1,026			7,402	66,618
10.....	8,363	83,630	32	320	22,364	223,635	183	1,830	30,942	309,415
12.....	60,830	729,954	769	9,228	11,247	134,962			72,846	874,144
13.....	374	4,862			212	2,756	309	4,017	895	11,635
14.....	3,104	43,456	4,257	59,598	3,831	53,631			11,192	156,685
15.....	68	1,020					44	660	112	1,680
16.....	4,593	73,488	376	6,016	8,037	128,584			13,006	208,088
17.....					636	10,812			636	10,812
18.....	2,214	39,852			4,149	74,682			6,363	114,534
20.....	562	11,240	830	16,600	1,407	28,140			2,799	55,980
22.....	134	2,948	9,109	200,398	823	18,106			10,066	221,452
24.....	2,711	65,064			2,270	54,480			4,981	119,544
25.....					304	7,600			304	7,600
26.....			280	7,280					280	7,280
28.....	2,261	63,308							2,261	63,308
30.....	53	1,590			313	9,390			366	10,980
32.....	77	2,464			485	15,520			562	17,984
36.....	3,854	138,744			26	936			3,880	139,680
38.....	193	7,334							193	7,334
40.....					1,589	63,560			1,589	63,560
44.....	424	18,656							424	18,656
56.....					749	41,944			749	41,944
58.....	7	406							7	406
64.....	106	6,784			176	11,264			282	18,048
70.....					53	3,710			53	3,710
72.....					118	8,496			118	8,496
82.....					35	2,870			35	2,870
Total	792,785	4,143,671	65,940	517,724	640,587	3,029,908	25,132	106,647	1,524,444	7,797,950

¹ This table does not include 15,193 feet of Postal Telegraph-Cable Co. conduit, 3,383 feet of United States Government conduit, 1,799 feet of United States Government pipe lines, 42 feet of Great Falls & Old Dominion Railway Co. conduit, 879.5 feet of Washington Market Co. pipe line, and 488 feet of private conduit.

TABLE NO. 16.—Summary of gas mains laid to June 30, 1911, beginning July 1, 1906.

Size of mains.	Washington Gas Light Co.	Georgetown Gas Light Co.	Total.
	<i>Linear feet.</i>	<i>Linear feet.</i>	<i>Linear feet.</i>
1½-inch.....	1,475		1,475
2-inch.....	217	381	598
3-inch.....	1,768		1,768
4-inch.....	64,911	10,269	75,180
6-inch.....	151,135	17,409	168,544
8-inch.....		3,709	3,709
10-inch.....		4,107	4,107
12-inch.....	64,956	27,507	92,463
16-inch.....	1,091	234	1,325
20-inch.....	3,069		3,069
24-inch.....	8,066		8,066
Total.....	296,688	63,616	360,304

TABLE NO. 17.—*Rights of way acquired during the fiscal year ending June 30, 1911.*

- For separate system outlet sewer (Broad Branch trunk) for vicinity of Reno Reservoir, in line of Fessenden Street, extended between Reno Road and Howard Street, through parcel 36/41.¹
- For separate system outlet sewer (Broad Branch trunk) for vicinity of Reno Reservoir, in line of Nebraska Avenue, extended between Connecticut Avenue and Fessenden Street, through parcel 46/2.¹
- For separate system outlet sewer (Beach Drive trunk) for vicinity of Pinehurst and Blue Ridge Heights, in line of Thirty-first Street NW., extending between Aspen and Tennyson Streets, through parcels 63/1 and 63/2.¹
- For separate system outlet sewer (Soapstone Valley trunk) for Grant Road in line of Brandywine Street, extended between Thirty-eighth Street and Grant Road, through parcel 35/96.¹
- For Rock Creek main interceptor, in valley of Rock Creek between Twenty-eighth Street and Connecticut Avenue, through lots 1, 2, 3, 4, and 5 of Square 2193.¹
- For separate system service sewer (Luzon Avenue trunk) in line of Eighth Street NW., extended between Dahlia and Elder Streets, through parcel 104/49.¹
- For separate system service sewer (Luzon Avenue trunk) in line of Eighth Street NW., extended between Dahlia and Elders Streets, through parcel 104/9.¹
- For separate system service sewer (Luzon Avenue trunk) in line of Eighth Street NW., extended between Elder Street and Fern Place, through parcel 104/59.¹
- For separate system service sewer (Luzon Avenue trunk) in line of Eighth Street NW., extended between Dahlia and Elder Streets, through parcel 103/19.
- For Piney Branch trunk sewer through lot 1 of Square 2927.¹
- For separate system outlet sewer (Piney Branch trunk) for vicinity of Takoma in line of Aspen Street produced between Sandy Spring Road and Willow Street, through lot 800 of Square 3357.¹
- For Petworth trunk sewer in line of Upshur Street NW., extended between Thirteenth Street and Georgia Avenue, through parcel 84/5.²
- For combined system outlet sewer (northeast boundary) for Columbia Road between Hobart Place and Columbia Road, through south part of original parcel 95/5.^{1, 3}
- For separate system service sewer (east side interceptor) in line of Newton Street NE., extended between Twentieth and Eighteenth Streets, through parcels 156/12¹ and 156/13.¹
- For separate system service sewer (east side interceptor) in line of Sixteenth Street NE., extended between Lawrence and Jackson Streets, through parcels 145/6¹ and 145/7.¹
- For separate system outlet sewer (east side interceptor) for vicinity of Langdon in line of Girard Street NE., extended between Mills Avenue and Twenty-second Street, through parcel 155/72.¹
- For storm water outlet sewer (Anacostia main interceptor) for W Street trunk along east bank of Anacostia River between Chicago and W Streets, through parcels 231/3² and 231/4.²
- For Anacostia main interceptor between Ord and Polk Streets, through lot 9 of Square 5102.²
- For Anacostia main interceptor in line of Forty-third Place, extended between Pine Street and Douglas Avenue, through lots 71 and 72 of Square 5115.²
- For Anacostia main interceptor in line of Forty-third Place, extended between Pine and Quarles Avenues, through lot 70 of Square 5115.²
- For Anacostia main interceptor between Douglas Avenue and Rusk Street, through lot 102 of Square 5116.²
- For temporary separate system outlet sewer (Anacostia main interceptor) vicinity of Kenilworth, through lot 91 of Square 5116.¹
- For temporary separate system outlet sewer (Anacostia main interceptor) vicinity of Kenilworth, through parcel 185/4.²
- For temporary separate system outlet sewer (Anacostia main interceptor) for vicinity of Kenilworth, through parcels 179/2² and 184/9.²
- For separate system outlet sewer (Potomac interceptor) for vicinity of Conduit Road between Canal Road and Potomac Avenue, extended through lot 802 of Square 1400.¹
- For separate system outlet sewer (Potomac interceptor) for vicinity of Conduit Road between Canal Road and Potomac Avenue, extended through lot 803 of Square 1400.¹

¹ Voluntary dedication.² Consideration paid.³ Alley dedication.

For separate system outlet sewer (Potomac interceptor) for vicinity of Conduit Road between Canal Road and Potomac Avenue, extended through lot 805 of Square 1400.¹

For combined system outlet sewer (Potomac interceptor) for vicinity of Potomac Heights between Canal Road and Potomac Avenue, through parcel 5/23.²

For combined system outlet sewer (Potomac interceptor) for vicinity of Potomac Heights, through Square 1442.²

For combined system outlet sewer (Potomac interceptor) for vicinity of Potomac Heights, through lot 1 of Square 1416.²

REPORT OF THE INSPECTOR OF BUILDINGS.

WASHINGTON, D. C., July 11, 1911.

SIR: I have the honor to submit herewith the annual report covering the transactions of the building division during the fiscal year ended June 30, 1911.

Statement of permits issued from July 1, 1910, to June 30, 1911.

	Num- ber.	Value.		Num- ber.	Value.
Brick repairs.....	1,539	\$1,778,326	Brick machine shop.....	1	\$4,800
Brick dwellings.....	1,476	4,695,250	Brick hotel.....	1	90,000
Brick apartments.....	18	664,578	Brick hotel (addition to Raleigh).....	1	800,000
Brick stores.....	83	349,241	Frame sheds.....	543	25,521
Brick stores and dwellings.....	53	282,303	Frame repairs.....	825	129,107
Brick stores.....	27	31,890	Frame dwellings.....	446	1,295,990
Brick garages.....	65	59,504	Frame stables.....	18	4,458
Brick sheds.....	13	2,095	Frame garages.....	16	6,850
Brick bank and office building	1	125,000	Frame churches.....	7	21,250
Brick mill.....	1	2,350	Frame factory.....	1	850
Brick warehouses.....	13	30,450	Frame dance pavilion.....	1	300
Brick workshops.....	7	17,220	Frame greenhouses.....	2	1,800
Brick studios.....	2	3,500	Frame boathouses.....	2	1,150
Brick churches.....	5	385,100	Frame stores.....	2	1,700
Brick club.....	1	312,766	Frame store and dwelling.....	1	1,000
Brick theater.....	1	75,000	Frame grandstand.....	1	4,500
Brick "Home for Aged Men".....	1	110,000	Concrete garage.....	1	700
Brick store and apartment.....	1	25,750	Steel and concrete stands.....	2	165,000
Brick power house.....	2	230,000	Iron sheds.....	20	2,668
Brick blacksmith shops.....	4	1,800	Iron freight depot.....	1	10,000
Brick carriage houses.....	3	1,700	Motors.....	158	48,735
Brick office buildings.....	10	1,043,925	Elevators.....	138	297,615
Brick 5-cent theaters.....	2	10,500	Engines and boilers.....	29	41,775
Brick school.....	1	35,000	Heating apparatuses.....	5	3,180
Brick boiler houses.....	2	26,892	Gas engines.....	4	4,850
Brick conservatory.....	1	2,000	Gasoline engines.....	2	160
Brick lodge.....	1	15,000	Machinery.....	5	387,100
Brick bank.....	1	70,000	Oil engine.....	1	35
Brick stores and offices.....	3	33,000			
Brick store and factory.....	1	14,000	Total.....	5,579	14,698,034
Brick laboratory.....	1	25,000	Awnings.....	216	16,200
Brick theater and office build- ing.....	1	750,000	Fire escapes.....	93	18,600
Brick laundry.....	1	8,800	Signs.....	820	8,200
Brick greenhouses.....	2	1,000			
Brick dormitory.....	2	128,000	Grand total.....	6,708	14,741,034

¹ Consideration paid.

² Voluntary dedication.

Comparative statement for the years 1910 and 1911.

	New buildings.	Repairs.	Dwell- ings.	Apart- ments.	Business buildings.
1911.....	2,293	3,873	1,922	18	351
1910.....	2,546	3,012	2,023	79	320
	¹ 253	861	¹ 101	¹ 61	31

¹ Decrease.

Valuation of building operations:

1911.....	\$14,698,034
1910.....	16,431,946
Decrease.....	1,733,912
Permits issued, including buildings, repairs, awnings, signs, engines, motors, elevators, etc.:	
1911.....	6,153
1910.....	7,420
Decrease.....	1,267
Projections beyond the building line, permits for.....	2,480

The following summary will show the distribution of improvements in the different sections of the District and the values of same:

	Buildings.	Repairs.
Northeast.....	\$594,608	\$79,534
Southeast.....	406,696	45,432
Northwest.....	4,638,722	2,223,062
Southwest.....	214,795	44,712
County.....	5,985,988	464,485
Total.....	11,840,809	2,857,225

Total for buildings and repairs, \$14,698,034.

Estimated number of buildings in the District of Columbia.

	Brick buildings.	Frame buildings.
1910.....	54,245	24,708
Erected in 1911.....	1,807	486
Total.....	56,052	25,194

It will be noted that during the year just closed the valuation of building operations was a million and three-quarters less than the year previous. There was a material decrease in the number of miscellaneous new buildings, dwellings, and apartment houses, but, on the other hand, there was an increase in new business buildings, and a very substantial increase in the number of repairs made.

By reason of this general decrease in operations the fees collected by the office were correspondingly reduced, the total revenue of the office being \$30,354.46, as compared with \$34,474.82 collected the year previous. The expenses of the office were \$31,323.25, so that the fees collected fell \$1,000 short of defraying expenditures. I do not, however, recommend any increase in the schedule of fees, as the year previous the fees collected exceeded the expenses of the office by more than \$5,200, and there is good reason to believe that the fees in the fiscal year 1912 will considerably exceed the appropriation made for the office for that year.

During the course of the year some minor changes have been made in the building regulations, but the revised code adopted the preceding year has proven generally most satisfactory and equitable.

Attention is invited to the report of the computers, upon whose intelligent examination of plans the major portion of the work of the office depends, and I heartily indorse

the recommendation therein made that funds heretofore allotted the office for the testing of materials for fireproof buildings be so appropriated as to permit the engineers of the building division to attend tests of such fireproofing materials and methods of construction, which are being made from time to time at points outside of the District of Columbia.

The report herewith of the inspector of fire escapes indicates the excellent results attained in the enforcement of the fire-escape law.

The reports of the assistant inspectors show the field work covered and the number and range of inspections made.

With the intimate knowledge I have of the work accomplished by the employees of this division I am deeply impressed with the fact that, generally, their services are not properly recompensed. The combination of responsibility, danger, and physical labor which these men have to bear, together with the lack of transportation facilities, renders their positions most arduous; and it is only with the hope of increases in compensation that it is possible to hold competent men in the more responsible positions. I can not too earnestly recommend that, as specifically enumerated in the "estimates," certain of the salaries of this office be increased and means of transportation furnished. The office being a self-supporting one it is felt that the tax collected in permit fees should be returned to the community in high-class supervision and inspection.

Very respectfully,

MORRIS HACKER,
Inspector of Buildings.

Capt. E. M. MARKHAM,
*Corps of Engineers, United States Army,
Assistant to Engineer Commissioner, District of Columbia.*

REPORT OF INSPECTORS OF ELEVATORS.

WASHINGTON, July 14, 1911.

SIR: We have the honor to submit our combined annual report for the fiscal year ended June 30, 1911, together with data covering elevator installations for the past year.

The elevators of this city have continued free from defective mechanism tending to cause accidents, and whenever found unsafe have been promptly repaired or ordered out of commission. There have been no accidents or loss of life due to breakage or derangement of machinery, though three persons were injured through personal carelessness.

The total number of elevators installed during the past year was 132. As a result of this office working under the revised regulations in force during the year, and with the hearty cooperation of the elevator builders, the new installations have been first class in every particular, so that the elevators of this city may safely be placed among the best. Of special mention is the runaway test on the speed governors of all passenger elevators, which insures the proper action of these safety devices.

Weekly examinations have been held throughout the year for elevator operators. On February 1, 1911, the board of examiners was given authority from the commissioners to issue license and badge upon successful examination of operators and payment of a fee of 50 cents for the same. The results as regards increase in efficiency and public safety have been gratifying, and the work is being pushed as rapidly as possible. We believe that by permitting only operators of experience to handle the cars and by educating them to a sense of the responsibility of their position the best service may be obtained in this class of public transportation. The examination of operators consumes the major portion of one day each week and amounted to 45 working days during the year subtracted from our regular time for inspection work. There has been no extra compensation, though an allowance for each of the three examining board members has been recommended.

During the fiscal year 1910 20 inspections were made for the United States Government, upon requests from the heads of departments. During the past year this number was increased to 94 inspections, due to increasing number of requests. A large number of these elevators are listed for regular quarterly examination by direction of the commissioners. The work is done as a courtesy to the General Government, but it adds greatly to our duties and responsibility.

We again take this opportunity to call your attention to the insufficient compensation attached to the office of the inspector of elevators, and urge an increase from \$1,200 to \$1,500 per annum. The number of elevators to be examined quarterly has increased greatly during the past few years, due to the activity in large building operations, and to extra work for the United States Government. One day of each

week has been given up to the examination of operators. The elevator inspectors of other large cities receive from \$1,600 to \$2,000. The elevator builders and mechanics of this and other cities are paid \$4.50 and \$5 for an eight-hour day, with special rates and extra pay for overtime; they therefore receive more than the inspector who must be in a position to judge and pass on their work. For the above reasons we feel that the knowledge, diligence, and experience demanded by the duties of this office are not fairly compensated by the old salary assigned to it years ago, and request that an increase to \$1,500 per annum be made.

In view of the fact that the revenue to this office from the elevator division is small, and deeming it but fair that the property owners benefited by this special inspection should bear a proportionate share of its expense to the city, we have the honor to submit a plan for apportionment for fees for elevator permits based on a sliding-scale system proportional to the cost of installations.

Previous to August 1, 1910, the fee for elevator permits was but \$1 for each permit, which during the fiscal year 1910 yielded a revenue of but \$130. The fee was raised on August 1, 1910, to \$5 per elevator, thus yielding a revenue of \$660 during the past year. In our opinion this fee is excessive in the case of the average hand-power elevator, costing from \$200 to \$300, and is far too small for a high-class installation, costing from \$3,000 to \$6,000.

We therefore have the honor to recommend that instead of the present flat rate of \$5 per elevator, the fees be charged according to sworn statements of the cost at the rate of one-half of 1 per cent of the cost, no fee being less than \$1. Upon this basis the fee for the average lowest price dumb-waiter, costing \$200, would be \$1, which is very reasonable. Higher class installations, involving more careful examination and regular quarterly inspection, would then yield from \$10 to \$30 each. Basing calculations upon permits issued by this office for elevators for 1911, by this rate the revenue would have been \$1,511.

This amount is one-half of the annual cost of the elevator inspection to this city. Should you deem it not an unreasonable assessment, the rate might be 1 per cent of the estimated cost, which would mean charging \$2 for the examination of the lowest price installation—a not excessive cost for expert examination. The income then would be \$3,000, and this division would be self-supporting.

In conclusion, we will state that we have prepared an extensive statistical chart covering the interesting points of the elevator work built in this city during the year 1911.

PASSENGER ELEVATORS.

Passenger elevators installed.....	65
Total cost.....	\$239,430
Speed:	
Number at 150 feet per minute or less.....	38
Number at 150 to 400 feet per minute or less.....	27
Heights of rise.....feet..	40-166
Average platform area:	
Public elevators.....square feet..	30
Residence elevators.....do....	18
Average capacity:	
Public elevators.....pounds..	2,000-3,000
Residence elevators.....do....	1,250
Location of machines (electric):	
Below.....	36
Overhead.....	29
Types of car safeties:	
Governor slow-grip clamp.....	37
Governor quick grip.....	28
Types of machines:	
Electric traction.....	13
Electric drum.....	52
Electric residence.....	10

FREIGHT ELEVATORS.

Freight elevators installed.....	67
Total cost.....	\$62,760
Average speed (electric).....feet per minute..	50
Average capacity:	
Electrics.....pounds..	2,500
One street-car lift.....do....	60,000
Hand power.....do....	1,000-2,000
Types of machines:	
Power driven.....	23
Hand power.....	42

Very respectfully,

WILLIAM I. EVANS,
E. A. C. HOGE,
Inspectors of Elevators.

The INSPECTOR OF BUILDINGS.

SIR: I have the honor to submit my report for the fiscal year ended June 30, 1911, covering the duties assigned to me in the district north of Pennsylvania Avenue, east of Tenth Street, and north of Massachusetts Avenue:

Passenger elevators installed (new).....	25
Passenger elevators altered.....	9
Freight elevators installed.....	28
Number of elevators inspected quarterly.....	255
Total number of inspections on elevators.....	1,230
Total number condemnations on elevators.....	1,078
Number inspections for United States Government.....	52
Number condemnations on elevators for United States Government.....	20
Number of inspections for District of Columbia government.....	4
Number of condemnations on elevators for District of Columbia.....	9
Miscellaneous inspections, visits, etc.....	32
Number of certificates issued.....	517

Very respectfully,

E. A. C. HOGE,
Inspector of Elevators.

The INSPECTOR OF BUILDINGS.

SIR: I have the honor to herewith submit my annual report for the fiscal year ended June 30, 1911:

Passenger elevators installed.....	41
Freight elevators installed (electric).....	15
Freight elevators installed (hand power).....	24
Alterations to passenger elevators.....	1
Elevators examined.....	1,186
Condemnations on elevators.....	950
Elevators inspected for the United States Government.....	42
Condemnations on elevators for United States Government.....	85
Elevators inspected for the District of Columbia.....	18
Condemnations on elevators for District of Columbia.....	3
Total inspections.....	1,246

Very respectfully,

W. I. EVANS,
Inspector of Elevators.

The INSPECTOR OF BUILDINGS.

ASSISTANT INSPECTORS' REPORT.

WASHINGTON, July 1, 1911.

SIR: We have the honor to submit herewith a statement of our official duties as assistant inspectors of buildings during the fiscal year ended June 30, 1911:

Visits to new buildings.....	51,346
Visits to old buildings.....	17,170
Visits of miscellaneous character.....	4,389
Total, 1911.....	72,905
1910.....	63,026
Condemnation of buildings or parts thereof.....	570
Buildings taken down.....	16
Police-court cases.....	10
Cast-iron columns inspected.....	141
Buildings renumbered.....	297
Buildings numbered (new).....	2,393

In accordance with the foregoing report, the duties of the regular field inspectors (eight in number), with additional service of one temporary man, show an average approximately equal to that of the past year, 1910, with slight increase in number of inspections. The work, figuring prorata, which is considered as a fair basis for accounting, shows an average attained of 27 daily inspections to the credit of each assistant. While the number of buildings erected shows a slight decrease over the previous year, it has been necessary to strengthen our efforts in order to give the work the desired supervision, on account of the general layout and irregular distribution as to location of the buildings in the several districts, and more especially the suburbs. Reduction to a considerable extent has been made in the operations on buildings constructed in rows or blocks, as heretofore, and which tends somewhat to curtail the

percentage of inspection work, yet, at the same time, increases action on the part of the men to properly cover their territories and look after the work assigned.

In our annual report for several years past we have urgently requested and looked forward to the time when better facilities may be had for transportation of the field force in their respective districts. The conditions under which the men have labored have been enumerated, and up to the present no relief in this direction has been applied or provided for. It is but reasonable to ask, for various reasons, the furtherance of this request, among which may be included the work, amounting yearly to \$14,000,000 and over, divided as nearly as possible between eight regular and one temporary assistants, and so situated as to embrace the entire district of 69.25 square miles. The building regulations provide in a clause antedating many years—a time when buildings were few and far between—for examination at least once a week of all buildings in course of erection, alteration, repairs, and removal, and as often as feasible to insure sufficient supervision, etc. It is therefore plain, in the face of the vast amount of work (official and in the field), increasing each year, as it has, and may continue with the city's growth, and in order to work in justice and harmony with those of the public with whom we are officially associated and in daily contact, that we be provided with suitable conveyance or allowance for maintenance of same.

Trusting to your good efforts in advancing the request herein stated, we have the honor to remain,

Most respectfully,

J. WM. DOWNING,
Acting Chief Field Inspector.

A. K. SELDEN,
ALBERT S. J. ATKINSON,
F. J. NIEDOMANSKI,
E. G. CURTIS,
W. A. DRAPER,
S. G. HUNTT,
A. M. PROCTOR,
J. B. HAMMOND,

Assistant Inspectors of Buildings.

W. B. DAVIS,

Temporary Inspector.

THE INSPECTOR OF BUILDINGS.

REPORTS OF ASSISTANT INSPECTORS OF BUILDINGS.

WASHINGTON, July 1, 1911.

SIR: I have the honor to submit herewith the statement of work performed in accordance with my official duties for year ended June 30, 1911. This covers the work in the following territory: B Street north on the south, Tenth Street west, B Street to Florida Avenue, Eleventh Street, Florida Avenue to Spring Road and Kansas Avenue to the District line on the west and north, Seventh Street, B Street north to Rock Creek Church Road, and Rock Creek Church Road to the District line on the east, and south by Sixth Street.

Number of days in field.....	277
Visits to new buildings.....	9,679
Visits to old buildings.....	2,293
Visits of miscellaneous character.....	369
Total.....	12,331
Condemnation of buildings or parts thereof.....	63
Cast-iron columns inspected.....	15

Respectfully submitted

A. K. SELDEN,
Assistant Inspector of Buildings.

WASHINGTON, July 1, 1911.

SIR: I have the honor to submit herewith the statement of work performed in accordance with my official duties for year ended June 30, 1911. This covers the work in the following territory: Pennsylvania Avenue and B Street on the south, Connecticut Avenue, Eighteenth Street, Adams Mill Road, Rock Creek on the west, and Fourteenth Street to Colorado Avenue, and Georgia Avenue on the east to the District line.

Number of days in field.....	270
Visits to new buildings.....	5,706
Visits to old buildings.....	2,404
Visits of miscellaneous character.....	792
Total.....	8,902
Condemnation of buildings or parts thereof.....	30
Cast-iron columns inspected.....	43

Respectfully submitted.

A. S. J. ATKINSON,
Assistant Inspector of Buildings.

The INSPECTOR OF BUILDINGS.

WASHINGTON, July 1, 1911.

SIR: I have the honor to submit herewith the statement of work performed in accordance with my official duties for year ended June 30, 1911. This covers the work in the following territory: B Street north on the south, Fourteenth Street, Colorado Avenue, and Georgia Avenue to the District line on the west, Tenth Street, B Street to Florida Avenue, Eleventh Street, Florida Avenue to Spring Road, and Kansas Avenue on the east.

Number of days in field.....	264
Visits to new buildings.....	3,576
Visits to old buildings.....	1,889
Visits of miscellaneous character.....	312
Total.....	5,777
Condemnation of buildings or parts thereof.....	41
Buildings taken down.....	9
Cast-iron columns inspected.....	7

Respectfully submitted.

F. J. NIEDOMANSKI,
Assistant Inspector of Buildings.

The INSPECTOR OF BUILDINGS.

WASHINGTON, July 1, 1911.

SIR: I have the honor to submit herewith the statement of work performed in accordance with my official duties for year ended June 30, 1911. This covers the work in the following territory: That bounded on the south by Water Street, on the west by Rock Creek, on the east by Seventeenth Street from Water Street to Pennsylvania Avenue; Pennsylvania Avenue to Sixteen-and-a-half Street, Sixteen-and-a-half Street to Connecticut Avenue, Connecticut Avenue to Eighteenth Street, Eighteenth Street to Adams Mill Road, to Zoo Park.

Number of days in field.....	267
Visits to new buildings.....	5,227
Visits to old buildings.....	2,047
Visits of miscellaneous character.....	724
Total.....	7,998
Condemnation of buildings or parts thereof.....	79
Buildings taken down.....	9
Court cases (as witness).....	5
Cast-iron columns inspected.....	33

Respectfully submitted.

E. G. CURTIS,
Assistant Inspector of Buildings.

The INSPECTOR OF BUILDINGS.

WASHINGTON, July 1, 1911.

SIR: I have the honor to submit herewith the statement of work performed in accordance with my official duties for year ended June 30, 1911. This covers the work in the following territory: That bounded by North Capitol Street, Michigan Avenue,

Sargeant Road, Eastern Avenue (District line), Pennsylvania Railroad tracks, West Virginia Avenue, L Street, Fourth Street, and East Capitol Street, all in northeast section of city.

Number of days in field.....	268
Visits to new buildings.....	4,180
Visits to old buildings.....	1,427
Visits of miscellaneous character.....	286
Total.....	5,893
Condemnation of buildings or parts thereof.....	40
Buildings taken down.....	7
Police court cases.....	1
Cast-iron columns inspected.....	6

Respectfully submitted.

W. A. DRAPER,
Assistant Inspector of Buildings.

The INSPECTOR OF BUILDINGS.

WASHINGTON, July 1, 1911.

SIR: I have the honor to submit herewith the statement of work performed in accordance with my official duties for year ended June 30, 1911. This covers the work in the following territory: B Street south, Seventh Street east side to Florida Avenue to Georgia Avenue, east side of Rock Creek Church Road to Blair Road to Sligo Mill Road, to District line, east to Sargeant Road to Michigan Avenue and First Street to B Street NW.

Number of days in field.....	282½
Visits to new buildings.....	6,121
Visits to old buildings.....	1,822
Visits of miscellaneous character.....	373
Total.....	8,316
Condemnation of buildings or parts thereof.....	106
Police court cases.....	4

Respectfully submitted.

S. G. HUNTT,
Assistant Inspector of Buildings.

The INSPECTOR OF BUILDINGS.

WASHINGTON, July 28, 1911.

SIR: I have the honor to submit herewith the statement of work performed in accordance with my official duties for year ended June 30, 1911. This covers the work in the following territory: That bounded on the south and west by the River and Fourteenth Street SW., on the north by the Mall, from Fourteenth Street west to the Capitol Grounds, Capitol Grounds to First Street east, First Street east to East Capitol Street, East Capitol Street to Fourth Street east, on the east by Fourth Street to Virginia Avenue SE., Virginia Avenue to the Eastern Branch to East Capitol Street, East Capitol on the north to Ridge Road, Ridge Road on north to District line, east and south to the Potomac River, opposite Alexandria and the place of beginning.

Number of days in field.....	275
Visits to new buildings.....	3,265
Visits to old buildings.....	1,323
Visits of miscellaneous character.....	845
Total.....	5,470
Condemnation of buildings or parts thereof.....	147
Cast-iron columns inspected.....	37

Respectfully submitted.

A. M. PROCTOR,
Assistant Inspector of Buildings.

The INSPECTOR OF BUILDINGS.

WASHINGTON, July 1, 1911.

SIR: I have the honor to submit herewith the statement of work performed in accordance with my official duties for year ended June 30, 1911. This covers the work in the territory all west of Rock Creek, from Potomac River to the District line north.

Number of days in field.....	270
Visits to new buildings.....	4,868
Visits to old buildings.....	1,572
Visits of miscellaneous character.....	156
Total.....	6,596
Condemnation of buildings or parts thereof.....	7

Respectfully submitted.

THE INSPECTOR OF BUILDINGS.

J. B. HAMMOND,
Assistant Inspector of Buildings.

WASHINGTON, July 1, 1911.

SIR: I have the honor to submit herewith the statement of work performed in accordance with my official duties for year ended June 30, 1911. This covers the work in the following territory: Fourth Street NE. and SE., to Virginia Avenue to Eastern Branch to Bennings Road to Ridge Road, to Bowen Road and District line SE, from Fourth Street NE. to L Street, to West Virginia Avenue, to Pennsylvania Railroad to District line NE.

Number of days in field.....	300
Visits to new buildings.....	8,724
Visits to old buildings.....	2,393
Visits of miscellaneous character.....	532
Total.....	11,649
Condemnation of buildings or parts thereof.....	57

Respectfully submitted.

W. B. DAVIS,
Assistant Inspector of Buildings.

THE INSPECTOR OF BUILDINGS.

COMPUTERS' REPORT.

WASHINGTON, August 28, 1911.

SIR: We have the honor to submit herewith our annual report for the fiscal year ended June 30, 1911.

During this past year there has been an increase in the number and size of buildings of fireproof construction, particularly in hotels, theaters, and office buildings. The number of apartment houses and dwellings has not shown the same ratio of increase, but it is believed the character of construction has improved; notably is this the case in the adoption of fireproof construction of apartment houses.

As in the past, there have been numerous calls upon this office to pass upon structural conditions existing in privately owned buildings which are rented and occupied by the Federal Government.

There have been various tests made of reenforced concrete construction, and also in connection with the use of an oil flux in concrete for waterproofing. Compression tests were also made on samples of sand lime brick manufactured in this vicinity.

With the growing demand for a thorough knowledge of fire preventive methods, it is necessary for the engineers of this division to keep abreast of the times in connection with this no less valuable than important work. And it is earnestly recommended, therefore, that an appropriation of \$300 be made for the investigation and testing of fireproof materials and methods. As many, and by far the most important, of these tests are made at points outside of the District, this appropriation should be available for the purpose of having representatives of the building division present when some of said tests are made that they might witness same and gain the valuable information to be derived therefrom at first hand.

While modern building construction has advanced with rapid strides, and the compensation of engineers connected with structural design has proportionately increased, the salary of the engineers and computers in this division has remained unchanged since the inception of the position. In view of the fact that we are called upon to examine and finally pass upon the work of some of the most eminent members of the profession of architecture and engineering, it is earnestly hoped that our salaries

may be increased to an amount more consistently remunerative of the character of work we are called upon to perform and the responsibilities the position entails.

Very respectfully,

T. L. COSTIGAN,
FRANK W. HART,
Engineers and Computers.

The INSPECTOR OF BUILDINGS.

REPORT OF INSPECTOR OF FIRE ESCAPES.

WASHINGTON, *July 12, 1911.*

SIR: I have the honor to respectfully submit my annual report for the fiscal year ended June 30, 1911, as follows:

Visits to apartment houses.....	1,968
Visits to theaters.....	142
Visits to hotels.....	180
Miscellaneous visits, including halls, public buildings, stores, etc.....	130
Cases in police court.....	11
Notices served.....	639
Compliances mailed.....	208
Fire escapes erected.....	235
Active cases in files.....	286

In submitting this report I would call attention to the increased number of inspections, etc., as compared with last year's report. This is due in a large measure to the assistance rendered me during the past year and would prove conclusively that it is practically impossible for one inspector to satisfactorily inspect completed work, examine old buildings, and prepare and deliver notices to bring them into compliance with the law. I would therefore recommend that an additional inspector at \$1,200 per annum be appointed and the work apportioned so as to effectively carry out the intent of the law governing the erection of fire escapes.

I am pleased to report that the owners of the fireproof apartment houses who have heretofore opposed the erection of fire escapes on their buildings show a willingness to comply with the notices sent them to equip their buildings in accordance with the fire-escape law.

Very respectfully,

JAMES P. PARRY,
Inspector of Fire Escapes.

The INSPECTOR OF BUILDINGS.

REPORT OF INSPECTOR OF STEAM BOILERS.

WASHINGTON, *September 5, 1911.*

SIR: I have the honor to submit, through Mr. Morris Hacker, Inspector of Buildings, the following report for the fiscal year ended June 30, 1911:

Boilers inspected.....	525
Boilers inspected for District of Columbia (no fee).....	36
Boilers condemned as unfit for use.....	2
Cases of—	
Deposit and sediment.....	8
Incrustation and scale.....	10
Internal corrosion.....	3
External corrosion.....	2
Defective setting.....	10
Burned plates.....	2
Defective tubes.....	22
Defective steam gauges.....	10
Serious leaks around tubes.....	12
Defective blow-off pipes.....	10
Fees collected during fiscal year.....	\$2,435
Necessary expenses during fiscal year.....	609
Balance.....	1,826

Very respectfully,

E. F. VERMILLION,
Inspector of Steam Boilers, District of Columbia.

The INSPECTOR OF BUILDINGS.

REPORT OF BOARD OF EXAMINERS OF STEAM ENGINEERS.

WASHINGTON, D. C., *September 5, 1911.*

SIR: We herewith submit to you the report of the board of examiners of steam engineers for the year ending June 30, 1911.

The following table shows the work as it progressed from month to month:

	Meet-ings held.	Applicants—			First class.	Second class.	Third class.	Dinkey class.	Dupli-cate.
		Re-ceived.	Ap-proved.	Incom-petent.					
1910.									
July.....	5	7	3	4	1	1	1		
August.....	4	11	5	6			5		
September.....	5	20	10	10			6		4
October.....	4	10	3	7			3		
November.....	4	10	9	9	3		6		1
December.....	5	18	9	9	3		6		
1911.									
January.....	4	13	6	7			6		
February.....	4	24	13	11		1	11	1	
March.....	5	26	13	13			8	5	
April.....	4	17	13	4	3	3	5	2	
May.....	4	15	8	7	1	1	5		1
June.....	5	20	7	13			4	3	
Total.....	53	191	94	97	9	6	62	11	6

The record of the work of this office is at present kept in a book which was furnished by the members of the board and at their own expense. This record book is now nearly filled, and we therefore request that the board be furnished with a suitable card-index system by which the record may be kept and be in conformance with the system prevailing in all other departments of the District executive offices.

Our estimate of expenses for the year ending June 30, 1913, has been forwarded to the secretary of the Board of Commissioners.

We respectfully ask that the amount set forth be appropriated.

Respectfully submitted.

E. F. VERMILLION,
H. BOESCH, *Secretary*,
DANL. JOHNSON,
Board of Examiners, Steam Engineers.

The INSPECTOR OF BUILDINGS.

REPORT OF THE BOARD FOR THE EXAMINATION OF ELEVATOR OPERATORS.

JULY 18, 1911.

SIR: We beg to submit the following report of the board of examiners for elevator operators for the fiscal year ending June 30, 1911.

Under date of February 1, 1911, the building regulations relative to the operation and construction of elevators in the District of Columbia was amended as follows:

"Ordered, That the board of examiners of elevator operators shall consist of three members, namely, the two inspectors of elevators and the secretary to the board for the condemnation of insanitary buildings, the last named to act as secretary to said board.

"In each instance of successful examination, upon the presentation to the board of receipt of the collector of taxes, District of Columbia, for 50 cents, which shall be the charge or fee for the issuance thereof, there will be issued to the applicant an operator's license and identification badge, which license shall be signed by the secretary to the board and approved by the inspector of buildings.

"The meetings of the board shall be held on Tuesday of each week between the hours of 1 and 3 o'clock p. m., in the office of the inspector of buildings, in which office shall be kept the records of the board in such manner as may be ordered by said official."

From the above amended regulation the inspector of buildings created the undersigned board for the examination of all applicants for elevator licenses.

During this period the following number have been examined:

Examined and license and badge issued.....	704
Failed and ordered back for reexamination.....	54
License revoked for cause.....	1

The efficiency of the elevator operators has increased more than 50 per cent through the examination conducted by the board whose duty it is to determine the fitness and practical qualifications of each applicant and his knowledge of the running parts of his elevator through an oral examination.

The license in each case is provisional, and on leaving the building for which he was examined the operator is required to register his change of address with the secretary of the board. In this way a complete record is kept of each operator and if for any reason he may become careless or negligent in the operation of his car he is brought before the board of examiners to make an explanation, and, in his failing to do so, his license is revoked and he is, therefore, not permitted to operate again in this city.

From February 1, 1911, until June 30, 1911, the District has derived an actual revenue of \$352 based on the four months' period and on this basis it is reasonable to assume that the annual income of the board will approximate over \$1,000 per year.

As you are perhaps aware, this board is serving without compensation from the District, and it is frequently necessary for each member to return in the evening for the purpose of holding examinations. This is done in order to accommodate business houses in the city where it is impossible for the operators to take their examinations in the afternoon. It has been the practice of the board to hold meetings on Tuesday from 2 p. m. until all applicants have been examined. Holding examinations on Tuesday of every week at 2 p. m. practically destroys the day for each member of this board; frequently we are at the extreme ends of the city and the operations of the board necessitate a suspension of inspection work. You can therefore see that much better progress could be made and our individual work kept up in a better manner if every meeting was held during the evening.

We would therefore respectfully recommend that each member be allowed the same compensation as are the members of the board of examiners for steam engineers, master plumbers, and the automobile board, which is \$300 per annum for each member. The above recommendation is made in view of the fact that the board of elevator examiners can be made a self-sustaining institution.

W. I. EVANS,
E. A. C. HOGE,
ROY E. HAYNES,

Board for the Examination of Elevator Operators.

STATEMENT OF PER DIEM EMPLOYEES.

The following is a list of persons other than day laborers employed on regular work for 30 days or more during the fiscal year 1911:

Name.	Title.	Number of days.	Rate.	Total paid.
J. R. Downman.....	Temporary additional inspector.....	288½	\$4.50	\$1,298.25
W. B. Davis.....	do.....	302	4.00	1,208.00
E. R. Keene.....	do.....	86	3.00	258.00
				2,704.25

The above employees were paid from appropriation for the employment of temporary additional assistant inspectors of buildings, 1911, against which the respective amounts enumerated were charged.

MORRIS HACKER,
Inspector of Buildings.

REPORT OF THE MUNICIPAL ARCHITECT.

WASHINGTON, D. C., *July 31, 1911.*

SIR: I have the honor to forward herewith the annual report of the operations of the office of the municipal architect, for the fiscal year ending June 30, 1911.

During the year 25 buildings and additions were under construction, as follows:

Buildings.	Appropriation available.	Cost.	Condition of work.
Chemical Engine House No. 2, Pennsylvania Avenue SE. ¹	July 1, 1909	\$20,504.00	Will be completed Aug. 1 1911.
McKinley Manual Training School, No. 130, third extension, Rhode Island Avenue and Seventh Street NW.	May 18, 1910	154,700.00	Will be completed Aug. 10 1911.
Playground Shelter, Rosedale	July 1, 1910	3,677.00	Completed July 20, 1911.
Playground Shelter, Georgetown, Thirty-fourth Street and Volta Place NW.	.....do.....	3,677.00	Do.
Normal School No. 162, Eleventh and Harvard Streets NW.	Mar. 2, 1911	220,617.00	To be completed July 13, 1912.
Eight-room School No. 163, Farragut Street, between Thirteenth and Fourteenth Streets NW.	May 18, 1910	59,052.00	To be completed Nov. 7, 1911.
Manual Training School No. 164, Wisconsin Avenue and Thirty-third Street NW.	.....do.....	30,149.00	Will be completed Sept. 21, 1911.
Twelve-room School No. 165, Eighth and T Streets NW.	{.....do.....}	92,500.00	{Will be completed Oct. 13, 1911.
Eight-room School No. 166, Randle Highlands. ²	{Mar. 2, 1911}	58,988.00	{Will be completed Mar. 18, 1912.
Central heating plant, M Street High School.	May 18, 1910	19,818.00	Will be completed Aug. 20, 1911.
Armstrong Manual Training School addition, P Street between First and Third Streets NW.	.....do.....	54,354.00	Will be completed Jan. 17, 1912.
Six-room School No. 167, Ivy City	.....do.....	44,130.00	Will be completed Sept. 13, 1911.
Manual Training School No. 168, First and I Streets SW.	.....do.....	31,961.00	Will be completed Sept. 24, 1911.
Engine House No. 24, Georgia Avenue	{.....do.....}	22,250.00	{Will be completed Aug. 31, 1911.
Takoma Branch Library, Fifth and Cedar Streets, Takoma Park, D. C.	{July 1, 1910}	34,000.00	{Will be completed Aug. 21, 1911.
Western High School addition, No. 117, Thirty-fifth and R Streets NW.	.....do.....	31,251.00	Will be completed Aug. 31, 1911.
Industrial Home School heating plant, Wisconsin Avenue and Observatory Lane NW.	June 25, 1910	760.00	Completed June 14, 1911.
Heating—Chevy Chase School.	July 1, 1910	697.00	Completed Nov. 10, 1910.
Grading and improvements at Langdon School.	.....do.....	975.00	Completed Nov. 4, 1910.
Garage and lodge, at Fort Reno	.....do.....	8,633.00	Completed July 6, 1911.
Grading and improvements at Thompson School.	.....do.....	2,244.00	Completed Feb. 16, 1911.
Changes in heating at Police Court Building	.....do.....	295.00	Completed Apr. 29, 1911.
Addition to District cement warehouse.	July 1, 1911	9,282.00	To be completed Aug. 1, 1911.
Mortuary Building, at Tuberculosis Hospital.	.....do.....	4,390.00	To be completed July 31, 1911.
Temporary stable for street cleaning department.	Mar. 3, 1911	.....	Completed May 17, 1911.

¹ Site donated Mar. 28, 1910.² Site donated June 8, 1911.

The plans for the stable for the street-cleaning department were started in June, 1911, and will be completed about July 31, 1911.

The plans for Normal School No. 169 (colored), for which an appropriation was made March 2, 1911, were started on March 11, 1911, and will be completed about September 30, 1911.

The plans for the Burrville School, appropriated for March 2, 1911, were started June 8, 1911, and completed July 28, 1911.

The plans for the Military Road School, for which an appropriation was made March 2, 1911, were started on June 7, 1911, and will be completed July 31, 1911.

The plans for the Manual Training School, twelfth division, appropriated for March 2, 1911, will be started as soon as a site for the building is located.

The plans for the new cells and corridors at four of the police stations, appropriated for July 1, 1911, will be started August 1, 1911.

The plans for the addition to the engine house at Tenleytown, appropriated for July 1, 1911, were started prior to the appropriation, and will be completed September 1, 1911.

The plans for the pound and stable, appropriated for March 2, 1911, are under consideration by the committee having in charge the selection of a site, etc., and will be completed about October 1, 1911.

The plans for the colored men's ward, Home for the Aged, for which an appropriation was made July 1, 1911, were prepared prior to the making of the appropriation, and work on same will be advertised in August, 1911.

BUILDINGS COMPLETED.

During the past fiscal year the following buildings were completed:
 Public Convenience Station No. 3, Ninth and K Streets NW.
 Thompson School, No. 156, Twelfth and L Streets NW.
 Monroe School Addition, No. 72, Columbia Road near Georgia Avenue NW.
 No. 23 Engine House, G Street between Twenty-first and Twenty-second Streets NW.
 Anacosta Police Station.
 Potomac School, No. 159, Tenth and E Streets SW.
 John Eaton School, No. 160, Cleveland Park, D. C.
 Benning School Addition, No. 48, Anacostia Road, D. C.
 Chevy Chase School Addition, No. 113, Chevy Chase, D. C.
 Lovejoy School Addition, No. 124, Twelfth and D Streets NE.
 Western High School Addition, No. 117, Thirty-fifth and Reservoir Streets NW.
 Bunker Hill School, Bunker Hill Road.
 Engine House No. 2, Twelfth Street between G and H Streets NW.

DEEP WELLS.

During the past year the construction of the wells and water supply of the school buildings and other District buildings was placed under the immediate supervision of the superintendent of the water department, but a new trestle and tank was erected at the Benning School under the supervision of this office in connection with the heating apparatus in the school building, and other wells and pumps are repaired by the superintendent of repairs.

MINOR REPAIRS AND IMPROVEMENTS.

Besides the work on the new buildings and additions, minor repairs and improvements were made on 37 other buildings, as shown by the following list:

Building.	Work.	Date of advertisement.
Police court.....	Retube boiler.....	July 1, 1910
Workhouse, District of Columbia.....	Sawmill outfit.....	July 20, 1910
Chevy Chase School.....	Hauling two outhouses.....	July 30, 1910
Summer School.....	Replacing two boilers.....	Do.
School, No. 165.....	Razing and removing building on site.....	Aug. 1, 1910
Chevy Chase School.....	Blower, motor, and connections.....	Aug. 4, 1910
Business High School.....	Iron gates at exits.....	Aug. 8, 1910
Lincoln School.....	Retubing boilers.....	Aug. 10, 1910
Langdon School.....	Grading grounds.....	Aug. 12, 1910
Georgetown Playground.....	Wading pool.....	Do.
Virginia Avenue Playground.....	do.....	Do.
McKinley Manual Training School.....	Razing and removing building on site.....	Do.
Webster School.....	New tread on stairs.....	Aug. 22, 1910
Chevy Chase, Weightman, and Phillips Schools.....	Transfer two portable buildings.....	Aug. 23, 1910
Public Library.....	Retubing boiler.....	Sept. 10, 1910
Benning, Jefferson, and Wheatley Schools.....	Transfer two portable buildings.....	Sept. 23, 1910
Disinfecting plant.....	New stack.....	Oct. 6, 1910
Truck House No. 2.....	New iron stalls.....	Oct. 13, 1910
Western High School.....	Retubing two boilers.....	Oct. 19, 1910
Engine House No. 15.....	Slate roof.....	Oct. 26, 1910
Engine House No. 6.....	New iron stalls.....	Nov. 1, 1910
Lovejoy School.....	Concrete steps and coping.....	Nov. 7, 1910
Do.....	Wire partition, fence, and painting.....	Do.
Lovejoy and Payne Schools.....	Transfer portable building.....	Nov. 12, 1910
Strong John Thompson School.....	Grading, surfacing, fencing, soiling, sodding, etc.....	Nov. 26, 1910
Western High School.....	Two iron stairways.....	Jan. 28, 1911
Chevy Chase School.....	Electric wiring, etc.....	Mar. 10, 1911
Industrial Home School.....	Boiler.....	Mar. 28, 1911
District of Columbia Workhouse.....	Two boilers.....	Do.
Schools.....	Reboring six cylinders for gas engines.....	Apr. 10, 1911
Chevy Chase School.....	Pebbledashing walls.....	Apr. 7, 1911
Engine House No. 2.....	Coal vault.....	Apr. 11, 1911
Engine House No. 24.....	Wiring and conduits.....	May 1, 1911
Takoma Branch Library.....	Furniture, equipment, etc.....	May 22, 1911
Engine House No. 7.....	New iron stalls.....	June 3, 1911

WORKHOUSE AT OCCOQUAN.

In May, 1910, temporary quarters and stockade were started near the stone quarry on the banks of Occoquan Creek. These were occupied the latter part of June. Temporary frame structures and tents were used, surrounded by barbed-wire stockade. Roads were built and water service run to the camp and quarry. September 15, 1910, the winter quarters, at the top of the hill, were started on a more permanent and extensive scale, as shown by the report of the superintendent of construction attached to this report. These buildings were occupied by the male prisoners about three months later, December 15, 1910, and the other buildings for the male workhouse were completed in March, 1911.

The female quarters were started about the 1st of April, 1911, and were occupied the 1st of July, 1911. The female quarters were removed about 1,000 feet from the male quarters.

The boiler house has been enlarged; the steam pipes have been put in concrete conduits; the water service has been perfected; the electric-light plant for the buildings is in operation, and the ice plant is about completed. Nothing remains to be done in the building line but the erection of a general barn and some outbuildings for the farm.

The superintendent of the workhouse has expressed his desire to take care of the remaining work of this kind, and I have therefore made arrangements to withdraw the superintendent of construction on and after the 1st of August, 1911, leaving with the superintendent of the workhouse the plans for the barn and buildings for the stock, etc., but I would suggest that an inspector be employed while the actual work on the barn is under way.

About \$18,000 remains in the allotment for construction, with some minor changes for water lines, the brickkilns, and the electric work.

The following report of the superintendent of construction covers, besides the buildings mentioned, practically all the physical improvements made at the workhouse site.

The female quarters cost \$7,576, including sewerage, and contain 274,044 cubic feet, making the cost less than 3 cents per cubic foot. The other buildings were erected at about the same rate of cost.

The boiler house and heating plant, the waterworks, ice-making plant, stone crusher, brickkilns, sawmill, and other improvements were the more expensive items. The steam trenches cost \$3,492, and are now of a permanent concrete construction.

The total cost of construction work done at the District of Columbia Workhouse site, at Occoquan, Va., to date, July 28, 1911, amounts to \$103,585.12, which covers the following items:

- One building, containing male prisoners' dining room, kitchen, and bakery.
- One building, containing superintendent's office, guards' sleeping quarters, offices, dining room, and kitchen.
- One building, containing the assistant superintendent's office, library, and male prisoners' lounging quarters.
- Two buildings, used as sleeping quarters for male prisoners.
- One storeroom, with large refrigerator attached.
- One building, used as a hospital for male prisoners.
- One building, containing ice plant with capacity of 2½ tons per day.
- One building, containing tailor's shop, general washhouse, and shower baths.
- Stockade, 500 by 800 feet, consisting of barbed wire, which incloses the above buildings.
- One building, containing office, sleeping quarters, and kitchen for female guards.
- One building, containing sleeping quarters, dining room, shower baths, toilet and store rooms for white, female prisoners.
- One building, containing sleeping quarters, dining room, shower baths, toilet and store rooms for colored, female prisoners.
- One laundry building, for the laundry work for male and female prisoners.
- One building, utilized for sewing rooms.
- One hospital building, for use of female prisoners.
- All the above-mentioned buildings are electric lighted, steam heated, have hot and cold water, sanitary plumbing, necessary sewerage, etc.
- One boiler house, containing the electric-light plant, which is of sufficient capacity to light the various buildings and grounds and to run the ice plant.
- Two 80-horsepower boilers and two 100-horsepower boilers.
- One thousand and ten linear feet of reenforced concrete trench, inside measurement 5 feet by 3 feet 4 inches, from boiler house to female quarters, for steam pipes, electric cables and wires to female quarters.

Sawmill, planer, shingle machine, which cut a large percentage of the lumber used in the various buildings.

Residence of superintendent.

Residence of assistant superintendent.

Residence of chief clerk.

Residence of superintendent of brick plant.

Boiler house and stone crusher, with necessary boilers, pumps, steam drill, and crushers, with a capacity of 100 cubic yards per day.

Brick plant, consisting of machine and boiler house and building to inclose driers, with necessary machines, boilers, kilns, etc., to operate with a capacity of 40,000 bricks per day.

The water-service plant consists of lines run from the Occoquan River to the prisoners' quarters, with necessary tanks and filters. All water used in the quarters is filtered. The quarters are fitted with fire lines and plugs, the water for this purpose being taken from the unfiltered tank.

The sewer line is run from the Occoquan River to the various buildings of the male and female quarters and consists of an 8-inch main with smaller-sized branches to the different buildings.

Hog pens, with shelter houses, have been erected.

Chicken houses and yards have been laid out.

A potato house has been erected.

Temporary quarters have been built to house workmen and stock. Also temporary stockades have been erected.

All labor and various materials, machinery, etc., were included in the estimate.

TIME CONSUMED IN PREPARATION OF PLANS.

The foregoing schedules show 63 buildings, for which plans and specifications were prepared in this office.

The preparation of plans for Government work and the execution of contracts for such work necessarily consume more time than for private work, for the reason that the plans for such buildings must be submitted to the Government officials who will be in charge of such buildings after their completion.

In the case of school buildings the plans are invariably submitted to the board of education, and some of these plans were in the hands of the board for more than six months before the submission of their criticisms or recommendations, as shown by the following table:

Name and number of school building.	Date plans forwarded to board of education.	Date plans acknowledged by board of education.	Time elapsing from submission of plans to board of education to return of plans.
No. 162, Normal No. 1, James Ormond Wilson.....	Feb. 1, 1911	Feb. 7, 1911	5½ months.
No. 163, J. R. West.....	Oct. 26, 1910	Oct. 28, 1910	1 week.
No. 164, Wisconsin Avenue Manual Training.....	Jan. 14, 1911	Jan. 18, 1911	6 months.
No. 165, Eighth and T.....	Oct. 26, 1910	Oct. 28, 1910	1 week.
No. 167, Ivy City.....	Nov. 3, 1910	.....	9 months.
No. 168, Cardozo Manual Training.....	Feb. 16, 1911	Feb. 20, 1911	5 months.
No. 129, Armstrong Addition.....	Mar. 9, 1911	Mar. 15, 1911	4 months.
No. 169, Normal No. 2.....	Apr. 28, 1911	Apr. 29, 1911	2 months.

Notwithstanding the delays consequent to the routine, plans and specifications have been turned out by this office for new buildings and alterations at the rate of five a month.

The following table will show the length of time intervening between the dates of the availability of the last appropriations and the dates of the completion of the buildings:

Name and number of building.	Date appropriation available.	Plans started and finished.	Work started and finished.	Number of months from availability of last appropriation to completion of building.
Potomac, No. 159.....	July 1, 1909	{Aug. 4, 1909 Dec. 4, 1909	{Feb. 24, 1910 Nov. 16, 1910	17
Lovejoy Addition.....	do.	{Nov. 22, 1909 Dec. 22, 1909	{May 2, 1910 Oct. 23, 1910	16
Eaton, No. 160.....	do.	{Aug. 25, 1909 Dec. 4, 1909	{Feb. 24, 1910 Oct. 20, 1910	15½
Benning Addition, No. 43.....	do.	{Dec. 6, 1909 Feb. 1, 1909	{May 4, 1910 Nov. 26, 1910	17
Chevy Chase Addition, No. 113.....	do.	{Oct. 1, 1909 Nov. 20, 1909	{Mar. 19, 1910 Oct. 21, 1910	15½
Western High Addition, No. 117.....	do.	{Aug. 9, 1909 Oct. 9, 1909	{Feb. 16, 1910 Nov. 18, 1910	16½
Bunker Hill, No. 161.....	do.	{Nov. 1, 1909 Dec. 15, 1909	{May 10, 1910 Dec. 15, 1910	17½
McKinley, 3d addition, No. 130.....	{do. (May 18, 1910	{Nov. 27, 1909 June 1, 1910 Sept. 17, 1910	{Dec. 12, 1910 Aug. 10, 1911	14½
Normal No. 1, No. 162 (Wilson).....	{do. (Mar. 2, 1911	{Nov. 18, 1910 Apr. 8, 1911 June 23, 1910	{July 5, 1911 Sept. 1, 1912 Mar. 4, 1911	18
J. R. West, No. 163.....	May 18, 1910	{Sept. 15, 1910 Oct. 3, 1910	{Nov. 7, 1911 Mar. 23, 1911	17½
Wisconsin Avenue Manual Training, No. 164.....	do.	{Jan. 10, 1911 June 18, 1910	{Sept. 21, 1911 Feb. 12, 1911	16
12-room, Eighth and T, No. 165.....	{do. (Mar. 2, 1911	{June 18, 1910 Sept. 10, 1910	{Feb. 12, 1911 Oct. 13, 1911	7½
Randle Highlands, No. 166.....	May 18, 1910	{May 22, 1911 June 2, 1911	{July 5, 1911 Mar. 5, 1912	9 months after selection of site.
Ivy City, No. 167.....	do.	{Sept. 16, 1910 Nov. 11, 1910	{Mar. 14, 1911 Sept. 13, 1911	
Cardozo Manual Training, No. 168.....	do.	{Oct. 3, 1910 Feb. 15, 1911 Feb. 23, 1911	{May 1, 1911 Sept. 24, 1911	16
Western High School, further addition, No. 117.....	{do. (June 23, 1910	{July 5, 1910 do.	{Mar. 12, 1911 Aug. 31, 1911	14

¹ Contract time.

For the 16 buildings above enumerated, the average time was 15.2 months. Taking the table first given above, of the 25 buildings for which plans were made during the past fiscal year, it will be seen that the average time elapsing from the date of the availability of the appropriation to the completion of the buildings is about 10.2 months. This shows a marked improvement over former conditions, and I do not believe that any similar office in the United States can show more expedition, and, with the improvements made in the organization of this office, now in its third year, I expect to have plans completed so that the work may start immediately after the passage of the appropriations.

LESS TIME CONSUMED IN MAKING REPAIRS.

The appropriation for repairs was made immediately available on the 2d of March, 1911. This is a great improvement over former conditions when the appropriation for repairs was not available until July 1. This year, upon the passage of the appropriation bill, the work was laid out and materials were obtained before the closing of the schools. As a result, about half of the work is already completed, and with the prospect of the completion of all the interior work that might interfere with the opening of the schools in September before that time arrives. The magnitude of this work is hardly appreciated by those not familiar with conditions. There are now over 155 school buildings in the District, besides the 18 portable schools. We have over \$10,000,000 invested in these buildings, which contain over 2,000,000 feet of floor area. The wear and tear on these floors is very great, necessitating the relaying of from 80,000 to 100,000 square feet of flooring each year. There are nearly 40,000 square yards of blackboards to be resurfaced and repaired. There are about 24 acres of roof surfaces, which is another enormous expense and one of the most important items in the care of the school buildings, as a leaking roof will cause exten-

sive damage if not promptly repaired. There are $4\frac{1}{2}$ miles of rain spouts. Nine miles of roof gutters and valleys. There are 6 acres of window glass, and, as many of these windows face the play grounds, the extent of repairs necessitated can be easily imagined. There are about 4,500 plumbing fixtures. There are about 3,500 doors and locks. There are about 300,000 square yards of plastered ceilings.

COMPARISON IN COST OF REPAIRS WITH OTHER CITIES.

Eight other cities comparable with Washington were communicated with in regard to this subject, and it is found that, with the exception of Cleveland, Ohio, the repairs to school buildings in this city are made at the same cost per room and per pupil as in St. Louis, and at a less cost than in any of the other cities from which reports were obtained.

COST OF NEW BUILDINGS.

The municipal architect has been employed in the designing and supervising of plans for school buildings for nearly 16 years, and during that time he has directed the preparation of plans for 74 school buildings, besides numerous additions and enlargements. I think it can be safely said that he has had experience with more schoolhouse work than any other architect in the United States. In the official reports of the board of education, the school house commission and the committee of architects who have examined our modern school buildings, the schools of Washington are commented on as comparing most favorably with those of other cities erected at about the same cost.

In the annual report of the past year the cubic-foot cost of our school buildings was carefully figured out. Our recent buildings are constructed of fireproof materials up to the roof. This, of course, includes tiling or concrete floors, iron or concrete stairways, and all partitions of brick, tile, or plaster blocks, with minor partitions constructed of angle irons, with metallic lath and hard plaster.

No woodwork whatever enters into the actual construction of the buildings, but it is limited to the doors, sash, and trim, and the surface floors are laid over fireproof materials. In the majority of cases the wooden surface floors are omitted in corridors, landings and basements, and cement, tile, or terrazzo used as a finished floor.

By the strictest economy in the use of stone, and by adopting very simple architectural treatment of the exteriors, combined with the use of moderate-priced face-brick, ranging in price from \$9 to \$14 per thousand, we have been able to construct these fireproof buildings at very slight advances over the cost of ordinary construction.

In order to make reliable comparisons with the cost of similar buildings in other cities, I have communicated with the schoolhouse architects in St. Louis, Chicago, Cleveland, New York, Boston, and Baltimore, and have received information from each of the cities named, with the exception of Cleveland. The statements received show that the methods used in calculating the cubic cost in these cities is, with the exception of Baltimore, the same as that used in Washington.

In Baltimore a slight advantage is obtained over the other cities named, in that the measurement is there made from the bottom of the footings to the roof, while in the other cities noted the cubic contents are arrived at by measuring from the basement level to the average height of the roof. The process seems to be a little further extended in New York by the inclusion of the cube of all vaults, areas, towers, and projections.

In St. Louis, the cubic cost of buildings, similar to ours, is 19.16 cents per cubic foot. Building materials are, however, a little cheaper in St. Louis than in Washington.

In Chicago, the buildings are almost invariably 3 stories in height, and contain from 24 to 40 class rooms, while here in Washington our largest graded schools contain but 16 class rooms and are but 2 stories in height. The information received concerning the cubic cost of the Chicago schools is not complete, but by taking individual cases from the report of the board of education of that city for 1909, we find that their buildings cost a little over 15 cents per cubic foot.

In New York, the buildings are much larger than in Washington, but, notwithstanding this fact, the average cost, as shown by the letter from the superintendent of the school buildings, is 24.7 cents per cubic foot.

In Boston, where the school buildings are of about the same type and character of construction as here in Washington, the average cost per cubic foot is 22.8 cents.

The communication from the supervisor of the school buildings of Baltimore states that the buildings in that city are not constructed of fireproof material, and that the floors contain wooden joists. This condition precludes a comparison with the cost of our buildings for the past five years, but the average cost of the Baltimore school buildings for that period is 14.56 cents per cubic foot.

The average cost per cubic foot of our Washington school buildings constructed during the last five years is 15.01 cents, which is about the same as that of the Chicago school buildings, notwithstanding the fact of the larger size of the buildings of the latter-named city. They are very much less expensive than the school buildings of New York, St. Louis and Boston, and cost only one-half cent per cubic foot more than the buildings of Baltimore, although the Washington school buildings are of fireproof construction, while the Baltimore school buildings are not.

In the Washington school buildings the materials used are the best obtainable and the plumbing and ventilating apparatus are of the most advanced types.

The fact that our school buildings are more economically constructed than those of other cities is due to the sharp competition of our local contractors, who have reduced their profits on the buildings to a very low percentage. This also accounts for the fact that but few outside contractors can compete with the Washington builders. In my 16 years of experience in the construction of District buildings, during which time more than 74 schoolhouses have been constructed and at least 25 other District buildings, I can not recall more than three that have been constructed by outside contractors, notwithstanding the fact that we have received bids from builders from many other cities. The margin of profit is so low on our buildings that many contractors have, after repeated efforts, ceased to bid in competition, but we continue to obtain from five to fifteen bids on each building.

The relative cost of repairs to our buildings with that of other cities is shown in the last annual report of the municipal architect, and, with the exception of Cleveland, Ohio, our buildings are maintained at a much less expense than those of other cities.

The moderate cost of our school buildings will probably be more clearly shown by a comparison with the cost of private buildings of similar construction. It would be only fair, however, to call attention to the fact that these private buildings are more ornate and that the prices quoted cover interior decorations that would not be suitable in school buildings.

I have communicated with about a half dozen architects requesting them to give me the cubic cost of any fireproof buildings that might be compared to school buildings as to size and materials of construction. I have received replies from four of the architects.

Mr. J. H. de Sibour submitted figures on a bank building, the cost of which was 52 cents per cubic foot; on an office building which cost 33 cents per cubic foot; on an hospital which cost 18.5 cents per cubic foot, and on a building at Howard University which cost 16 cents per cubic foot.

Messrs. Hornblower & Marshall quoted the cost of a large residence building at 63 cents per cubic foot. This work included considerable work on the grounds, but exclusive of this exterior work, the building proper would cost about 53 cents per cubic foot.

Mr. A. P. Clark, jr., quoted the price on a hospital building at 21 cents per cubic foot, and on a building constructed for the use of the Government at 24 cents per cubic foot. He also quoted the price on a church building, but it is not reasonable to compare the estimate on an ecclesiastical structure by the cubic foot, for obvious reasons.

Mr. L. E. Dessez gave the price of a moderate-sized office building which cost 19½ cents per cubic foot.

It will therefore be seen that the cheapest of the private buildings cost at least 1 cent per cubic foot more than our school buildings, and that the most expensive of the private buildings cost over four times as much per cubic foot as our school buildings.

TABLE SHOWING CUBIC COST OF BUILDINGS.

Last year in the annual report the cubic cost of District buildings was given from the year 1897 to the year 1910, inclusive. The cubic cost of the buildings erected during the past fiscal year, and those now under construction, is as follows:

Building: Name, number, description, and location.	Cost.	Cubic contents.	Cost per cubic foot.	Heating plan.	Architect.
			<i>Cents.</i>		
Normal No. 1, James Ormond Wilson, No. 162, Harvard between Eleventh and Thirtieth Streets NW.	\$220,617	1,403,048	15.72	Direct and indirect.	Municipal architect.
Joseph Rodman West, No. 163, Fourteenth and Farragut Streets NW.	59,052	352,226	16.44	Fan, engine, and furnaces.	Do.
Wisconsin Avenue Manual Training, No. 164, Wisconsin Avenue and Thirty-third Street NW.	28,800	175,122	16.44	Gravity indirect...	T. J. D. Fuller.
Elighth and T Streets, school No. 155 NW.	92,300	593,475	15.54	Fan, motor, and furnace.	Municipal architect.
Randle Highlands, No. 166 Thirtieth and R Streets SE.	58,988	352,226	16.7	Fan, engine, and furnace.	Do.
Central Heating Plant, M Street High, Simmons and Douglass schools.	\$28,804	37,576	(?)	Two boilers, direct and indirect.	Do.
Armstrong Manual Training School, No. 129, First and P Streets NW.	\$54,354	349,600	15.54	Four boilers, direct and indirect.	Wood, Donn & Deming.
Alexander Crummell, No. 167, Ivy City, D. C.	44,130	291,920	15.1	Fan, engine, and furnaces.	Municipal architect.
Cardozo Manual Training, No. 168, First and I Streets SW.	27,500	171,769	16.0	Direct-indirect...	Marsh & Peter.
Western High School Addition, No. 117, Thirty-fifth and R Streets NW.	39,251	194,015	16.1	Direct	Municipal architect.
McKinley Manual Training, Third Addition, No. 130, Seventh Street, Rhode Island Avenue, and Marion Street NW.	\$154,700	662,361	23.35	Direct and indirect.	Hornblower & Marshall.
Engine House, No. 24, Georgia Avenue, near Rock Creek Church Road NW.	22,010	113,911	16.0	Steam.....	Cregg & Leisenring.
Chemical Engine House No. 2, Pennsylvania Avenue and Twenty-eighth Place SE.	20,405	165,798	12.3	.....do.....	Averill, Hall & Adams.
Takoma Branch Library, Takoma Park, D. C.	34,000	164,730	21.24	.....do.....	Marsh & Peter.
Playground Shelter, Georgetown, Thirty-fourth Street and Volta Place NW.	3,032	19,674	15.4	None.....	Municipal architect.
Playground Shelter, Rosedale...	3,032	19,674	15.4	.....do.....	.....do.....
Mortuary Building at Tuberculosis Hospital.	4,390	22,530	19.4	Steam.....	.....do.....
Addition to District cement warehouse.	9,282	111,384	8.3	None.....	.....do.....

¹ Exclusive of heating and electric work.

² This work is distributed among four buildings, including the boiler house. Cannot be cubed.

³ Includes work in former building.

⁴ This includes work in old building.

EXPENSES OF ADMINISTRATION.

During the past year the limitation for personal services for overseers, draftsmen, copyists, and inspectors was \$19,000. On account of the sharp competition and the small margin of profit to the contractors for District buildings, most careful and constant inspection is required on each building to see that the contracts are strictly complied with. On some of the larger buildings two inspectors are necessary, while in some instances one inspector may divide his time among several of the smaller buildings.

During the past year 12 inspectors have been employed on 17 buildings.

The total expenditure for inspectors, copyists, and other personal services was \$18,410.55, leaving a balance of \$589.45 in the personal service limitation.

The cost of new buildings under construction during the past year was \$917,890, not including about \$30,000 for minor improvements, and excluding all expenditures for repairs.

The personal service of inspectors amounting to but 1.54 per cent of the cost of the buildings.

The annual pay roll of the office was about \$6,500, so that the total expense for the preparation of plans and inspection of the buildings was but 2.24 per cent of the cost of the buildings.

Taking into account the commissions paid to architects and the services of draftsmen, the total expenses of the municipal architect's office was \$35,186.09. This includes the cost of inspection, the salaries of the office force, the pay of draftsmen, and the commissions to architects, and amounts to but 3.83 per cent of the cost of the buildings erected.

I have visited the architects in many of the other large cities and have inquired into the items of expense for similar work, and I find that this office is conducted at nearly half the expense incurred in other large and progressive cities.

The economical administration of this office and the relatively low cost of our school buildings and their repairs, when combined with the high cost of school administration, helps to lower the percentage of the total expenditures for school purposes. In figuring on the school expenses of Washington, the cost of buildings and repairs should not be considered in connection with the cost of education, as this branch of the work is entirely separate and distinct from the school administration.

LOCATION OF BUILDINGS.

In former years it was the practice to set the school buildings a considerable distance back of the building lines in order to afford ample parkings and foregrounds for the buildings, but about three years ago this practice changed, for the reason that the space in front of the buildings could not be utilized for playgrounds and at the same time be kept in a presentable condition. The buildings were therefore set out to the building lines, depending on the regular street parkings, which in most cases are ample and devoting the entire space at the rear of the buildings to playgrounds. This policy has been adhered to with a few exceptions, notably the Benning School and the Bunker Hill School. In the latter instance the building was located in accordance with the expressed wishes of the president and vice president of the board of education and contrary to my recommendations.

COMPLETION OF WORK.

The plans for all buildings now appropriated for, including the engine houses and police stations, will be completed by the 1st of October. This will afford an opportunity to take up the plans of one of the high schools, but in order to expedite the construction of the Central High School I would recommend that an architect of long experience and acknowledged ability in schoolhouse work be employed to assist in the preparation of these plans. I will proceed at the earliest opportunity to prepare estimates for these buildings and to collect all the necessary data preliminary to the preparation of plans.

REPORT OF THE SUPERINTENDENT OF REPAIRS.

I have the honor to transmit with this report that of the superintendent of repairs. I have also made recommendations in the annual estimates concerning the salary of the superintendent of repairs. When this report is examined it will give some idea of the scope of his work and the requirements of his office.

The superintendent of repairs has been officially commended by the board of education, and I wish to add that his services have been satisfactorily and intelligently performed.

THE FINE ARTS COMMISSION AND THE ARCHITECTS.

During the past year, on my recommendation, you requested the Fine Arts Commission to pass on our plans for District government buildings, and they kindly consented to do so. We have thereby received the highest esteemed architectural and artistic advice on the plans of the normal school and other District buildings.

The District has been fortunate in securing the services of several of our best local architects to assist and advise in the preparation of plans for our District government buildings. Three of our architects gave a large portion of their time to the inspection of practically every school building in the District. This service was rendered by them without the slightest personal remuneration, save the consciousness of the performance of a service for their fellow taxpayers. They made a report, which was pub-

lished through Congress. They were men of high professional standing, and therefore made a fair and impartial report of much value to this office.

Very respectfully,

SNOWDEN ASHFORD,
Municipal Architect.

Capt. E. M. MARKHAM,
*Corps of Engineers, United States Army,
Assistant to the Engineer Commissioner, District of Columbia.*

REPORT OF THE SUPERINTENDENT OF REPAIRS.

SIR: I have the honor to forward herewith my annual report of the work done by this office for the fiscal year ending June 30, 1911.

The last appropriation of \$60,000 for repairs and improvements to school buildings and grounds was not sufficient to meet the demands made upon this office during the year. On March 16, 1911, the appropriation became exhausted, but fortunately the appropriation for 1912 became available March 2, 1911, allowing the work then underway to be carried on to completion.

Every effort has been made to make repairs where most needed and to keep the buildings from deteriorating to the extent to cause unnecessary criticism. With the small amounts appropriated each year to meet the growing demands for repairs, it is a serious problem for this office to expend the funds satisfactorily to all concerned. These conditions, in my opinion, have caused an ill feeling and lack of cooperation which are detrimental to good service.

It has been the invariable custom of this office to expend the funds in making repairs on buildings where the conditions most require, regardless of the occupants.

Since the Collinwood fire, appropriations have been made for the purpose of replacing wooden stairways in brick buildings, etc., \$50,000 in 1909, and for the fiscal year 1910 "For additional amount for 'repairs and improvements to school buildings and grounds,' for the purpose of replacing wooden stairways in brick buildings with those of fireproof construction, removal of old and unsuitable fire ladders and fire escapes, improving exits, and for such miscellaneous alterations and repair work as may be necessary to secure protection against fire in existing school buildings owned by the District of Columbia, \$60,000, or so much thereof as may be necessary, to be immediately available;" in 1911 "For additional amount for 'repairs and improvements to school buildings and grounds,' for the purpose of providing additional fire protection such as fireproofing heating apparatus, fireproofing corridors, alterations to heat and vent flues, and construction of fireproof storage for fuel and ashes, and the purchase and erection of fire extinguishers and fire alarms, to be immediately available, \$37,500;" in 1912 "For additional amount for 'repairs and improvements to school buildings and grounds' for the purpose of providing additional fire protection, such as fireproofing heating apparatus, fireproofing corridors, alterations to heat and vent flues, and construction of fireproof storage for fuel and ashes, and the purchase and erection of fire extinguishers and fire alarms, \$37,500," or a total of \$185,000. for protection against fire.

In accordance with the provisions of the aforesaid appropriation acts, I have put iron stairways in about 40 buildings, constructed about 41 ash and fuel vaults, changed 26 exit doors and opened 28 new doors, have put fireproof material on 29 ceilings over heating apparatus, etc., and I have also installed 145 fire gongs and 450 fire extinguishers, etc.

I have collected and arranged in systematic form the comments and criticisms of the buildings from all sources, such as the board of education, the schoolhouse commission, the committee to examine and report on schools, the chief of the fire department, the health officer, and any publications bearing on the subject, and wherever such criticisms and recommendations have been for practicable and necessary improvements, the work has been done. About 95 per cent of all the work of this character has been accomplished, and to-day the buildings are in a safe condition, if properly used and cared for.

In accordance with the recommendations of the health officer "sanitary" drinking fountains are being installed in school buildings at the rate of about 100 each year, and as the old drinking cup has been pronounced insanitary and is theoretically dangerous, they will be replaced as rapidly as possible. If any legislation is passed to dispense with the old cup on short notice, it should be accompanied with an appropriation for about 1,200 fountains or \$48,000.

I again recommend that Congress be asked to continue the method adopted this year and make all appropriations to be used by this office immediately available.

This will enable me to commence the repair work on school buildings the day following the closing of schools for the summer, and to employ a sufficient force of mechanics to expedite the work. By this arrangement the foremen can be in closer touch with their men and secure a better class of work more economically.

In my estimates for 1913 I am again requesting that the amounts of the several appropriations under my charge be increased. The number of buildings, repairs, and improvements which I am called upon to care for, is constantly growing, and it is utterly impossible to perform this additional work year after year for practically the same amount. The additional small sums granted by Congress in the past have been entirely inadequate to render the services required of my force.

During the past year 15 per cent of the appropriation for repairs to school buildings was spent on heating apparatus alone. During the coming fiscal year it will be necessary to use more than \$6,000 to replace broken and worn out parts of furnaces, etc. In addition to this, several of the larger heating plants must be completely renovated and some of the older ones will have to be replaced. To do this work would require an expenditure of about 20 per cent of the total repair fund. As can be readily seen this greatly depletes the funds out of which much other very important work must be paid for. If the present appropriation of \$70,000 "for repairs and improvements to school buildings and grounds and for repairing and renewing heating and ventilating apparatus" was available for use for repairs and improvements, with the exception of heating apparatus, and an increased amount appropriated sufficient to care for the heating plants, much better results in all directions could be obtained. Some of the plants now in use have already deteriorated so much from age and are in need of such constant and thorough repairs that it would be considerably cheaper if they were replaced, yet this is an impossibility, owing to the fact that the appropriation is already entirely too small to meet the demands now made upon this office. For this reason I earnestly recommend that Congress be importuned to make an appropriation to care for this very important item.

Private corporations allow about 6 per cent of the amount of rentals for repairs. Schools, on account of the heavy damage due to hard use, should be allowed twice as much as private buildings.

There is (on present estimated values) \$10,000,000 invested in school buildings, grounds, and equipments. Allowing 1 per cent for repairs would equal \$100,000 per year.

There are over 2,200,000 square feet of floor area in the school buildings. Allowing 4 per cent per foot repairs would cost \$88,000.

It should be borne in mind that the cost of painting done on buildings includes the cost of glazing, due largely to breakage, resulting from the location of playgrounds adjacent thereto, and amounts to about 17 per cent of the total cost of repairs. The cost of resurfacing and painting 38,000 square yards of blackboards is also included in this item.

During the year a record has been kept of buildings where fire has occurred, and the cost of repairing the damages is as follows:

September 3, 1910, Montgomery School, cost of repairing damage.....	\$100.38
December 14, 1910, Armstrong Manual Training School, cost of repairing damage.....	111.66
January 30, 1911, No. 2 Police Station, cost of repairing damage.....	633.89

The following detailed statement and summary will convey an approximate idea of the amount and class of work performed under my supervision.

Respectfully,

HENRY STOREY,
Superintendent of Repairs.

The MUNICIPAL ARCHITECT.

Public schools, District of Columbia, 1910-11, repairs to buildings, heating apparatus, etc.

[Appropriation, \$60,000.]

Class of work.	Labor.	Material.	Contract.	Total.
<i>Abbot School, No. 27.</i>				
Carpentering.....	\$5.75	\$105.76		\$111.51
Tinning.....	12.94	2.73		15.67
Heating.....		1.82	\$9.14	10.96
Miscellaneous.....		.70		.70
Material drawn by janitor.....		.11		.11
Total.....	18.69	111.12	9.14	138.95
<i>Adams School, No. 65.</i>				
Carpentering.....	50.79	6.55		57.34
Painting.....	.91	.59		1.50
Heating.....	2.19	1.33	14.57	18.09
Material drawn by janitor.....		.54		.54
Total.....	53.89	9.01	14.57	77.47
<i>Addison School, No. 53.</i>				
Carpentering.....	22.19	161.97		184.16
Painting.....	2.94	.98		3.92
Heating.....	9.13	3.55	36.42	49.10
Total.....	34.26	166.50	36.42	237.18
<i>Ambush School, No. 79.</i>				
Carpentering.....	47.38	20.49		67.87
Painting.....	4.44	3.61		8.05
Heating.....		1.00	55.57	56.57
Repairing hand rail.....	.94	.65		1.59
Material drawn by janitor.....		.95		.95
Total.....	52.76	26.70	55.57	135.03
<i>Amidon School, No. 42.</i>				
Carpentering.....	8.50	4.41		12.91
Painting.....	3.62	3.05		6.67
Tinning.....	11.50	14.78		26.28
Heating.....	6.25	2.64	19.06	27.95
Gas engine.....	23.00	7.04		30.04
Total.....	52.87	31.92	19.06	103.85
<i>Armstrong Manual Training School, No. 129.</i>				
Carpentering.....	53.39	14.91		68.30
Painting.....	355.47	103.83		459.30
Tinning.....	66.81	34.43		101.24
Heating.....	70.50	35.97		106.47
Steam fitting.....	163.91	345.26		509.17
Material drawn by janitor.....		11.11		11.11
Total.....	710.08	545.51		1,255.59
<i>Arthur School, No. 70.</i>				
Carpentering.....	62.31	155.19		217.50
Painting.....	100.00	25.61		125.61
Tinning.....	34.31	7.73		42.04
Heating.....			97.18	97.18
Total.....	196.62	188.53	97.18	482.33
<i>Bannaker School, No. 39.</i>				
Carpentering.....	9.88	3.95		13.83
Painting.....	3.50	.39		3.89
Tinning.....	22.00	1.72		23.72
Heating.....			164.07	164.07
Gas engine.....	23.00	11.58	19.00	53.58
Material drawn by janitor.....		.74		.74
Total.....	58.38	18.38	183.07	259.83

Public schools, District of Columbia, 1910-11, repairs to buildings, heating apparatus, etc.—Continued.

Class of work.	Labor.	Material.	Contract.	Total.
<i>Bell School, No. 78.</i>				
Carpentering.....	\$136.89	\$149.46	.....	\$286.35
Painting.....	66.94	36.62	.....	103.56
Tinning.....	5.50	2.27	.....	7.77
Heating.....	.....	.....	\$101.84	101.84
Total.....	209.33	188.35	101.84	499.52
<i>Bennings School, No. 48.</i>				
Carpentering.....	487.41	369.93	.....	857.34
Painting.....	26.00	19.72	.....	45.72
Tinning.....	18.19	15.59	.....	33.78
Heating.....	7.19	1.35	.....	8.54
Repairing pump and erecting windmill.....	77.72	7.30	.....	85.02
Total.....	616.51	413.89	.....	1,030.40
<i>Berret School, No. 66.</i>				
Carpentering.....	63.94	67.99	.....	131.93
Painting.....	104.52	35.51	.....	140.03
Tinning.....	25.00	8.86	.....	33.86
Heating.....	.....	.....	42.16	42.16
Total.....	193.46	112.36	42.16	347.98
<i>Birney School, No. 127.</i>				
Carpentering.....	8.25	5.45	.....	13.70
Painting.....	1.00	3.67	.....	4.67
Tinning.....	52.82	15.03	.....	67.85
Heating.....	.....	.....	46.27	46.27
Gas engine.....	14.50	6.31	.....	20.81
Total.....	76.57	30.46	46.27	153.30
<i>Blair School, No. 50.</i>				
Carpentering.....	28.75	99.70	.....	128.45
Painting.....	37.50	22.16	.....	59.66
Heating.....	.....	.....	3.49	3.49
Gas engine.....	13.00	1.21	.....	14.21
Material drawn by janitor.....	.....	1.89	.....	1.89
Total.....	79.25	124.96	3.49	207.70
<i>Blake School, No. 61.</i>				
Carpentering.....	78.12	66.99	.....	145.11
Painting.....	28.53	7.79	.....	36.32
Heating.....	.....	.....	10.93	10.93
Material drawn by janitor.....	.....	5.35	.....	5.35
Total.....	106.65	80.13	10.93	197.71
<i>Blow School, No. 145.</i>				
Carpentering.....	10.00	4.94	.....	14.94
Painting.....	1.25	.64	.....	1.89
Tinning.....	157.38	259.47	.....	416.85
Heating.....	6.81	1.04	32.31	40.16
Motor.....	11.00	.12	.....	11.12
Total.....	186.44	266.21	32.31	484.96
<i>A. Bowen School, No. 109.</i>				
Carpentering.....	15.38	21.25	.....	36.63
Painting.....	1.32	.75	.....	2.07
Tinning.....	2.25	.27	.....	2.52
Heating.....	.....	.....	58.59	58.59
Gas engine.....	62.25	22.10	.....	84.35
Total.....	81.20	44.37	58.59	184.16

Public schools, District of Columbia, 1910-11, repairs to buildings, heating apparatus, etc.—Continued.

Class of work.	Labor.	Material.	Contract.	Total.
<i>S. J. Bowen School, No. 123.</i>				
Carpentering.....	\$29.50	\$61.76		\$91.26
Painting.....	17.50	6.26		23.76
Heating.....	1.50	.12		1.62
Steam fitting.....	25.90	4.83		30.73
Material drawn by janitor.....		1.66		1.66
Total.....	74.40	74.63		149.03
<i>Bradley School, No. 60.</i>				
Carpentering.....	6.22	182.43		188.65
Painting.....	1.00	.43		1.43
Tinning.....	.50	1.05		1.55
Heating.....	.50	1.05	\$10.93	12.48
Total.....	8.22	184.96	10.93	204.11
<i>Brent School, No. 46.</i>				
Carpentering.....	175.50	84.05		259.55
Painting.....	11.61	4.39		16.00
Tinning.....	11.50	3.54		15.04
Heating.....	179.31	103.31	27.90	310.52
Gas engine.....	30.50	6.29	19.00	55.79
Total.....	408.42	201.58	46.90	656.90
<i>Briggs School, No. 75.</i>				
Carpentering.....	4.79	.55		5.34
Painting.....	.50	.12		.62
Tinning.....	.94	1.85		2.79
Heating.....			66.62	66.62
Material drawn by janitor.....		1.69		1.69
Total.....	6.23	4.21	66.62	77.06
<i>Brightwood School, No. 104.</i>				
Carpentering.....	1.50	2.51		4.01
Painting.....	106.25	31.85		138.10
Heating.....	.75	.52		1.27
Steam fitting.....	9.75	1.36		11.11
Material drawn by janitor.....		.74		.74
Total.....	118.25	36.98		155.23
<i>Brightwood Park School, No. 151.</i>				
Carpentering.....	48.50	36.63		85.13
Painting.....	45.38	16.86		62.24
Tinning.....	9.75	5.11		14.86
Heating.....			2.63	2.63
Grading.....	187.50			187.50
Gas engine.....	21.00	10.77		31.77
Material drawn by janitor.....		1.14		1.14
Total.....	312.13	70.51	2.63	385.27
<i>Brookland School, No. 103.</i>				
Carpentering.....	19.50	101.68		121.18
Painting.....	2.50	.53		3.03
Tinning.....	74.50	30.97		105.47
Heating.....		2.25		2.25
Steam fitting.....	17.08	8.02		25.10
Total.....	113.58	143.45		257.03
<i>Bruce School, No. 112.</i>				
Carpentering.....	187.43	76.95		264.38
Painting.....	4.44	4.52		8.96
Tinning.....	30.81	4.00		34.81
Heating.....			17.51	17.51
Gas engine.....	7.00			7.00
Material drawn by janitor.....		1.79		1.79
Total.....	229.68	87.26	17.51	334.45

Public schools, District of Columbia, 1910-11, repairs to buildings, heating apparatus, etc.—Continued.

Class of work.	Labor.	Material.	Contract.	Total.
<i>Bryan School, No. 155.</i>				
Painting.....	\$1.50	\$.38	.....	\$1.88
Tinning.....	5.50	2.60	.....	8.10
Heating.....	.....	.....	\$17.80	17.80
Gas engine.....	33.50	8.60	.....	42.10
Total.....	40.50	11.58	17.80	69.88
<i>Buchanan School, No. 96.</i>				
Carpentering.....	13.00	5.26	.....	18.26
Tinning.....	8.00	.89	.....	8.89
Heating.....	.....	.....	15.50	15.50
Total.....	21.00	6.15	15.50	42.65
<i>Bunker Hill Road School, No. 47.</i>				
Carpentering.....	39.75	58.19	.....	97.94
Painting.....	2.88	.42	.....	3.30
Total.....	42.63	58.61	.....	101.24
<i>Burrville School, No. 91.</i>				
Carpentering.....	17.38	9.44	.....	26.82
Painting.....	2.00	.08	.....	2.08
Total.....	19.38	9.52	.....	28.90
<i>Business High School, No. 144.</i>				
Carpentering.....	22.37	2.83	.....	25.20
Painting.....	8.28	3.53	.....	11.81
Tinning.....	73.69	26.19	.....	99.88
Heating.....	.....	17.02	.....	17.02
Steamfitting.....	13.51	4.81	.....	18.32
Miscellaneous.....	10.50	17.60	8.00	36.10
Total.....	128.35	71.98	8.00	208.33
<i>Carbery School, No. 58.</i>				
Carpentering.....	73.31	32.36	.....	105.67
Painting.....	119.03	23.10	.....	142.13
Tinning.....	17.25	3.63	.....	20.88
Heating.....	.....	.....	15.81	15.81
Miscellaneous.....	5.01	.....	.....	5.01
Material drawn by janitor.....	.....	5.15	.....	5.15
Total.....	214.60	64.24	15.81	294.65
<i>Cardoza School, No. 148.</i>				
Carpentering.....	21.50	7.14	.....	28.64
Painting.....	7.75	7.14	.....	14.89
Tinning.....	3.00	.55	.....	3.55
Heating.....	.....	.....	17.13	17.13
Gas engine.....	37.25	12.27	.....	49.52
Material drawn by janitor.....	.....	1.63	.....	1.63
Total.....	69.50	28.73	17.13	115.36
<i>Central High School, No. 43.</i>				
Carpentering.....	229.20	103.87	.....	333.07
Painting.....	81.04	23.22	.....	104.26
Tinning.....	67.63	17.17	.....	84.80
Heating.....	17.75	12.57	.....	30.32
Steamfitting.....	140.54	41.74	.....	182.28
Material drawn by janitor.....	.....	1.17	.....	1.17
Total.....	536.16	199.74	.....	735.90

Public schools, District of Columbia, 1910-11, repairs to buildings, heating apparatus, etc.—Continued.

Class of work.	Labor.	Material.	Contract.	Total.
<i>Chevy Chase School, No. 113.</i>				
Carpentering.....	\$723.31	\$188.94		\$912.25
Painting.....	58.61	23.75		82.36
Tinning.....	10.50	3.04		13.54
Heating.....	746.69	397.68		1,144.37
Installing fan and motor.....	138.86	38.94	\$334.00	511.80
Grading.....	247.01			247.01
Miscellaneous.....	27.00	32.43	12.75	72.18
Total.....	1,951.98	684.78	346.75	2,983.51
<i>Congress Heights School, No. 111.</i>				
Carpentering.....	127.39	260.63		388.02
Painting.....	9.00	1.25		10.25
Tinning.....	11.25	6.50		17.75
Heating.....			60.68	60.68
Miscellaneous.....	15.00	3.50		18.50
Material drawn by janitor.....		5.44		5.44
Total.....	162.64	277.32	60.68	500.64
<i>J. F. Cook School, No. 50.</i>				
Carpentering.....	13.44	172.13		185.57
Painting.....	78.56	24.53		103.09
Tinning.....	21.00	16.10		37.10
Heating.....			40.15	40.15
Gas engine.....	12.25	.56		12.81
Total.....	125.25	213.32	40.15	378.72
<i>H. D. Cooke School, No. 154.</i>				
Carpentering.....	14.56			14.56
Painting.....	2.44	1.41		3.85
Tinning.....	4.94	.85		5.79
Heating.....		1.50	48.34	49.84
Total.....	21.94	3.76	48.34	74.04
Gas engine.....	44.00	40.13		84.13
Miscellaneous.....	42.70			42.70
Material drawn by janitor.....		.95		.95
Total.....	108.64	44.84	48.34	201.82
<i>Corcoran School, No. 68.</i>				
Carpentering.....	21.31	8.94		30.25
Painting.....	6.50	9.47		15.97
Tinning.....	35.75	14.76		50.51
Heating.....	1.63	.53	23.17	25.33
Total.....	65.19	33.70	23.17	122.06
<i>Cranch School, No. 137.</i>				
Carpentering.....	17.75	8.45		26.20
Painting.....	4.50	1.75		6.25
Heating.....	16.20	13.15		29.35
Steamfitting.....	6.75	.11		6.86
Miscellaneous.....	.50	.05		.55
Material drawn by janitor.....		1.85		1.85
Total.....	45.70	25.36		71.06
<i>Curtis School, No. 26.</i>				
Carpentering.....	87.57	95.36		182.93
Painting.....	24.67	5.63		30.30
Steamfitting.....	11.65	1.19		12.84
Fill-in between cement coping.....	51.00			51.00
Material drawn by janitor.....		6.36		6.36
Total.....	174.89	108.54		283.43

Public schools, District of Columbia, 1910-11, repairs to buildings, heating apparatus, etc.—Continued.

Class of work.	Labor.	Material.	Contract.	Total.
<i>Deanwood School, No. 152.</i>				
Carpentering.....	\$142.45	\$81.15		\$223.60
Painting.....	45.28	15.60		60.88
Tinning.....	24.44	21.39		45.83
Heating.....	34.50	2.62	\$37.74	74.86
Total.....	246.67	120.76	37.74	405.17
<i>Dennison School, No. 52.</i>				
Carpentering.....	100.88	125.70		226.58
Painting.....	10.22	8.93		19.15
Tinning.....	11.25	5.09		16.34
Heating.....			13.60	13.60
Steamfitting.....	7.25	.28		7.53
Material drawn by janitor.....		3.88		3.88
Total.....	120.60	143.88	13.60	287.08
<i>Dent School, No. 120.</i>				
Carpentering.....	63.35	27.43		90.78
Painting.....	2.28	1.38		3.76
Tinning.....	33.25	15.28		48.53
Heating.....	2.25		346.17	348.42
Gas engine.....	38.50	11.63	19.00	69.13
Miscellaneous.....		4.50		4.50
Total.....	139.73	60.22	365.17	565.12
<i>Douglass School, No. 99.</i>				
Carpentering.....	8.00	106.28		114.28
Painting.....	2.50			2.50
Tinning.....	18.56	8.68		27.24
Heating.....			2.01	2.01
Gas engine.....	8.00	6.48		14.48
Material drawn by janitor.....		1.76		1.76
Total.....	37.06	123.20	2.01	162.27
<i>Eaton School, No. 160.</i>				
Painting.....	.50	.06		.56
Motor.....	7.00			7.00
Slide bar.....	.84			.84
Total.....	8.34	.06		8.40
<i>Eastern High School, No. 85.</i>				
Carpentering.....	154.57	104.60		259.17
Painting.....	8.72	2.12		10.84
Tinning.....	17.88	7.70		25.58
Heating.....	4.50	2.00	1.16	7.66
Steamfitting.....	15.59	1.26		16.85
Material drawn by janitor.....		1.85		1.85
Total.....	201.26	119.53	1.16	321.95
<i>Eckington School, No. 116.</i>				
Carpentering.....	13.25	14.89		28.14
Painting.....	10.54	6.50		17.04
Tinning.....	6.00	.55		6.55
Heating.....			15.19	15.19
Gas engine.....	16.00	.42		16.42
Total.....	45.79	22.36	15.19	83.34
<i>Edmonds School, No. 155.</i>				
Carpentering.....	271.39	473.17		744.56
Painting.....	5.00	3.68		8.68
Tinning.....	3.25	1.15		4.40
Heating.....			32.32	32.32
Gas engine.....	16.50	.48		16.98
Material drawn by janitor.....		1.15		1.15
Total.....	296.14	479.63	32.32	808.09

Public schools, District of Columbia, 1910-11, repairs to buildings, heating apparatus, etc.—Continued.

Class of work.	Labor.	Material.	Contract.	Total.
<i>Emery School, No. 133.</i>				
Carpentering.....	\$18.50	\$11.69		\$30.19
Painting.....	22.41	11.05		33.46
Tinning.....	9.00	.27		9.27
Steam fitting.....	27.94	8.63		36.57
Material drawn by janitor.....		4.74		4.74
Total.....	77.85	36.38		114.23
<i>Fillmore School, No. 92.</i>				
Carpentering.....	32.99	111.05		144.04
Painting.....	2.50	.73		3.23
Tinning.....	4.81	4.20		9.01
Heating.....			\$11.00	11.00
Total.....	40.30	115.98	11.00	167.28
<i>Force School, No. 32.</i>				
Carpentering.....	27.16	15.98		43.14
Painting.....	97.95	19.43		117.38
Heating.....	.50			.50
Steam fitting.....	4.00	.56		4.56
Miscellaneous.....	2.00	.06		2.06
Total.....	131.61	36.03		167.64
<i>Fort Slocum School, No. 11.</i>				
Painting.....	1.88	.74		2.62
<i>Franklin School, No. 15.</i>				
Carpentering.....	51.17	18.31		69.48
Painting.....	33.03	25.28		58.31
Tinning.....	29.56	2.89		32.45
Heating.....			40.87	40.87
Steam fitting.....	16.66	5.38		22.04
Material drawn by janitor.....		1.66		1.66
Total.....	130.42	53.52	40.87	224.81
<i>B. B. French School, No. 141.</i>				
Gas engine.....	7.50	3.44		10.94
<i>Gage School, No. 143.</i>				
Carpentering.....	23.69	3.82		27.51
Painting.....	17.63	11.51		29.14
Tinning.....	26.19	28.96		55.15
Heating.....			64.15	64.15
Grading.....	6.82			6.82
Gas engine.....	7.50	6.49		13.99
Repairing iron gates.....	2.00	.36		2.36
Total.....	83.83	51.14	64.15	199.12
<i>Gales School, No. 36.</i>				
Carpentering.....	23.94	25.21		49.15
Tinning.....	23.00	4.23		27.23
Steam fitting.....	3.50	.82		4.32
Miscellaneous.....	5.57	17.71		23.28
Material drawn by janitor.....		2.30		2.30
Total.....	56.01	50.27		106.28
<i>Garfield School, No. 158.</i>				
Carpentering.....	14.35	3.38		17.73
Painting.....	.88	.25		1.13
Tinning.....	22.44	2.94		25.38
Heating.....			39.79	39.79
Gas engine.....	7.00	3.44		10.44
Total.....	44.67	10.01	39.79	94.47

Public schools, District of Columbia, 1910-11, repairs to buildings, heating apparatus, etc.—Continued.

Class of work.	Labor.	Material.	Contract.	Total.
<i>Garnet School, No. 34.</i>				
Carpentering.....	\$19.50	\$55.91		\$75.41
Painting.....	59.03	15.68		74.71
Tinning.....	24.13	7.60		31.73
Heating.....	.69			.69
Steam fitting.....	22.00	40.71		62.71
Material drawn by janitor.....		3.69		3.69
Total.....	125.35	123.59		248.94
<i>Garrison School, No. 76.</i>				
Carpentering.....	12.00	5.59		17.59
Painting.....	73.07	32.07		105.14
Tinning.....	8.94	7.06		16.00
Heating.....			\$32.55	32.55
Total.....	94.01	44.72	32.55	171.28
<i>Giddings School, No. 63.</i>				
Carpentering.....	5.44	92.46		97.90
Painting.....	6.56	3.04		9.60
Heating.....	2.00	.12	10.77	12.89
Total.....	14.00	95.62	10.77	120.39
<i>Good Hope School, No. 73.</i>				
Carpentering.....	16.50	18.03		34.53
Painting.....	.44	.75		1.19
Total.....	16.94	18.78		35.72
<i>Grant School, No. 41.</i>				
Carpentering.....	44.53	14.81		59.34
Painting.....	3.88	1.83		5.71
Steamfitting.....	202.61	395.91		598.52
Material drawn by janitor.....		4.21		4.21
Total.....	251.02	416.76		667.78
<i>Greenleaf School, No. 105.</i>				
Carpentering.....	32.75	91.65		124.40
Tinning.....	2.00	.55		2.55
Heating.....			8.29	8.29
Gas engine.....	6.00	11.00		17.00
Total.....	40.75	103.20	8.29	152.24
<i>Hamilton School, No. 37.</i>				
Carpentering.....	15.13	20.39		35.52
Tinning.....	24.32	12.57		36.89
Total.....	39.45	32.96		72.41
<i>Harrison School, No. 84.</i>				
Carpentering.....	41.60	20.14		61.74
Painting.....	.47	.50		.97
Tinning.....	16.31	10.62		26.93
Heating.....			3.41	3.41
Total.....	58.38	31.26	3.41	93.05
<i>Hayes School, No. 107.</i>				
Carpentering.....	41.13	60.14		101.27
Painting.....	1.44	.55		1.99
Tinning.....	27.31	4.40		31.71
Heating.....	41.13	6.12	9.77	57.02
Gas engine.....	23.25	11.96		35.21
Material drawn by janitor.....		3.96		3.96
Total.....	134.26	87.13	9.77	231.16

Public schools, District of Columbia, 1910-11, repairs to buildings, heating apparatus, etc.—Continued.

Class of work.	Labor.	Material.	Contract.	Total.
<i>Henry School, No. 53.</i>				
Carpentering.....	\$62.69	\$97.70		\$160.39
Painting.....	5.56	2.33		7.89
Grading.....	80.25			80.25
Steamfitting.....	20.52	15.19		35.71
Material drawn by janitor.....		3.77		3.77
Total.....	169.02	118.99		288.01
<i>High Street School, No. 164.</i>				
Carpentering.....	1.00	8.21		9.21
<i>Hilton School No. 115.</i>				
Carpentering.....	11.44	4.01		15.45
Painting.....	4.50	1.96		6.46
Tinning.....	13.32	3.54		16.86
Heating.....			\$38.44	38.44
Gas engine.....	23.50	3.73		27.23
Material drawn by janitor.....		1.15		1.15
Total.....	52.76	14.39	38.44	105.59
<i>Hubbard School, No. 119.</i>				
Carpentering.....	7.00	2.75		9.75
Painting.....	100.63	33.19		133.82
Tinning.....	46.44	30.04		76.48
Heating.....	1.38	1.09	17.44	19.91
Gas engine.....	20.00	13.42		33.42
Total.....	175.45	80.49	17.44	273.38
<i>Hyde School, No. 147.</i>				
Carpentering.....	23.69	4.42		28.11
Painting.....	.94	.41		1.35
Tinning.....	15.00	1.06		16.06
Heating.....			31.75	31.75
Gas engine.....	11.75	3.44		15.19
Total.....	51.38	9.33	31.75	92.46
<i>Ivy City School, No. 167.</i>				
Carpentering.....	4.00	1.27		5.27
Tinning.....				
Total.....	4.00	1.27		5.27
<i>Jackson School, No. 69.</i>				
Carpentering.....	32.25	119.43		151.68
Painting.....	9.00	2.24		11.24
Heating.....	2.88	1.21	33.47	37.56
Material drawn by janitor.....		.40		.40
Total.....	44.13	123.28	33.47	200.88
<i>Jefferson School, No. 23.</i>				
Carpentering.....	142.69	265.82		408.51
Painting.....	208.82	30.91		239.73
Tinning.....	45.50	16.71		62.21
Heating.....		9.43		9.43
Steamfitting.....	57.97	82.74		140.71
Material drawn by janitor.....		8.55		8.55
Total.....	454.98	414.16		869.14
<i>Johnson School, No. 95.</i>				
Carpentering.....	57.44	76.19		133.63
Painting.....	2.00	.59		2.59
Tinning.....	209.44	103.12		312.56
Heating.....			117.56	117.56
Grading.....	136.63			136.63
Total.....	405.51	179.90	117.56	702.97
<i>Johnson Annex, No. 21.</i>				
Tinning.....	8.50	14.13		22.63

Public schools, District of Columbia, 1910-11, repairs to buildings, heating apparatus, etc.—Continued.

Class of work.	Labor.	Material.	Contract.	Total.
<i>Jones School, No. 77.</i>				
Carpentering.....	\$30.10	\$24.98		\$55.08
Painting.....	3.44	1.57		5.01
Tinning.....	3.25	1.28		4.53
Heating.....			\$8.69	8.69
Material drawn by janitor.....		4.97		4.97
Total.....	36.79	32.80	8.69	78.28
<i>Kenilworth School, No. 128.</i>				
Carpentering.....	34.38	30.26		64.64
Painting.....	1.31	.40		1.71
Tinning.....	3.75	1.91		5.66
Heating.....			170.73	170.73
Motor.....	5.00	.32		5.32
Material drawn by janitor.....				
Total.....	44.44	32.89	170.73	248.06
<i>Ketcham School, No. 149.</i>				
Carpentering.....	5.19	5.24		10.43
Painting.....	1.50			1.50
Tinning.....	.27			.27
Heating.....			2.47	2.47
Gas engine.....	26.50	3.44	21.75	51.69
Total.....	33.46	8.68	24.22	66.36
<i>Langdon School, No. 108.</i>				
Carpentering.....	32.00	21.19		53.19
Painting.....	6.09	9.62		15.71
Tinning.....	.75	1.45		2.20
Heating.....			22.85	22.85
Grading.....	174.88	12.50	975.00	1,162.38
Miscellaneous.....	4.00	.32		4.32
Material drawn by janitor.....		.40		.40
Total.....	217.72	45.48	997.85	1,261.05
<i>Langston School, No. 132.</i>				
Carpentering.....	56.22	12.77		68.99
Painting.....	5.13	3.09		8.22
Tinning.....	10.50	2.81		13.31
Heating.....			26.50	26.50
Gas engine.....	29.50	11.75		41.25
Total.....	101.35	30.42	26.50	158.27
<i>Lenox School, No. 67.</i>				
Carpentering.....	13.50	174.60		188.10
Painting.....	1.97	.85		2.82
Tinning.....	.50	.01		.51
Heating.....			8.76	8.76
Total.....	15.97	175.46	8.76	200.19
<i>Lincoln School, No. 18.</i>				
Carpentering.....	24.07	26.13		50.20
Painting.....	3.76	1.32		5.08
Heating.....			160.00	160.00
Steam fitting.....	51.94	12.11		64.05
Material drawn by janitor.....		2.87		2.87
Total.....	79.77	42.43	160.00	282.20
<i>Logan School, No. 90.</i>				
Carpentering.....	78.38	352.21		430.59
Painting.....	6.70	1.26		7.96
Tinning.....	7.50	3.01		10.51
Heating.....			33.63	33.63
Material drawn by janitor.....		1.40		1.40
Total.....	92.58	357.88	33.63	484.09

Public schools, District of Columbia, 1910-11, repairs to buildings, heating apparatus, etc.—Continued.

Class of work.	Labor.	Material.	Contract.	Total.
<i>Lovejoy School, No. 124.</i>				
Carpentering.....	\$13.50	\$23.41		\$36.91
Painting.....	1.35	1.14		2.49
Tinning.....	39.25	13.83		53.08
Heating.....	1.00	1.85	\$27.88	30.73
Grading.....	86.16			86.16
Gas engine.....	18.50	6.88		25.38
Total.....	159.76	47.11	27.88	234.75
<i>Ludlow School, No. 142.</i>				
Carpentering.....	30.13	15.06		45.19
Painting.....	2.44	1.68		4.12
Tinning.....	5.00	.27		5.27
Heating.....			4.57	4.57
Gas engine.....	27.00	16.56		43.56
Material drawn by janitor.....		1.15		1.15
Total.....	64.57	34.72	4.57	103.86
<i>Madison School, No. 71.</i>				
Carpentering.....	124.35	417.94		542.29
Painting.....	87.06	27.58		114.64
Tinning.....	22.69	7.58		30.27
Heating.....	4.13	1.10	2.32	7.55
Total.....	238.23	454.20	2.32	694.75
<i>Magruder School, No. 62.</i>				
Carpentering.....	36.00	129.31		165.31
Painting.....	6.38	3.57		9.95
Heating.....			7.52	7.52
Total.....	42.38	132.88	7.52	182.78
<i>Maury School, No. 55.</i>				
Carpentering.....	38.07	90.30		128.37
Painting.....	1.50	.32		1.82
Heating.....	2.25	1.21	6.66	10.12
Gas engine.....	27.00	6.22		33.22
Material drawn by janitor.....		2.94		2.94
Total.....	68.82	100.99	6.66	176.47
<i>McCormick School, No. 16.</i>				
Painting.....	3.00	1.05		4.05
Heating.....			7.59	7.59
Material drawn by janitor.....		1.89		1.89
Total.....	3.00	2.94	7.59	13.53
<i>McKinley Manual Training School, No. 130.</i>				
Carpentering.....	5.00			5.00
Painting.....	11.25	7.66		18.91
Tinning.....	4.37	1.67		6.04
Heating.....	7.82			7.82
Steam fitting.....	10.38	3.00		13.38
Material drawn by janitor.....		19.10		19.10
Total.....	38.82	31.43		70.25
<i>Monroe School, No. 72.</i>				
Carpentering.....	80.19	22.36		102.55
Painting.....	18.28	9.83		28.11
Tinning.....	10.68	5.89		16.57
Grading.....	532.15			532.15
Motor.....	3.00			3.00
Tightening railing.....	1.01	.68		1.69
Total.....	645.31	38.76		684.07

Public schools, District of Columbia, 1910-11, repairs to buildings, heating apparatus, etc.—Continued.

Class of work.	Labor.	Material.	Contract.	Total.
<i>M Street High School, No. 82.</i>				
Carpentering.....	\$140.41	\$84.44		\$224.85
Painting.....	270.78	59.68		330.46
Tinning.....	50.25	17.39		67.64
Heating.....			\$1.16	1.16
Steam fitting.....	16.40	.72		17.12
Material drawn by janitor.....		6.88		6.88
Total.....	477.84	169.11	1.16	648.11
<i>Old Mott School, No. 40.</i>				
Carpentering.....	1.50	.25		1.75
Painting.....	4.00	1.95		5.95
Tinning.....	1.50	1.35		2.85
Heating.....			47.75	47.75
Steam fitting.....	1.50	.70		2.20
Total.....	8.50	4.25	47.75	60.50
<i>New Mott School, No. 153.</i>				
Carpentering.....	15.50	2.00		17.50
Painting.....	131.37	35.77		167.14
Tinning.....	9.10	56.00		65.10
Heating.....	4.00	.33		4.33
Gas engine.....	9.00	3.48		12.48
Grading.....	58.75			58.75
Miscellaneous.....	3.63	.16		3.79
Material drawn by janitor.....		9.37		9.37
Total.....	231.35	107.11		338.46
<i>Military Road School, No. 8.</i>				
Carpentering.....	13.47	24.13		37.60
Tinning.....	11.00	13.58		24.58
Heating.....		3.00		3.00
Total.....	24.47	40.71		65.18
<i>Montgomery School, No. 140.</i>				
Carpentering.....	13.69	21.60		35.29
Painting.....	4.25	3.43		7.68
Tinning.....	4.12	.95		5.07
Heating.....			162.13	162.13
Gas engine.....	20.50	10.33	21.75	52.58
Total.....	42.56	36.31	183.88	262.75
<i>Morgan School, No. 125.</i>				
Carpentering.....	309.41	149.06		458.47
Painting.....	131.06	22.64		153.70
Tinning.....	11.00	1.67		12.67
Heating.....			29.60	29.60
Gas engine.....	6.50	3.57		10.07
Total.....	457.97	176.94	29.60	664.51
<i>Morse School, No. 44.</i>				
Carpentering.....	135.78	58.64		194.42
Painting.....	20.38	6.84		27.22
Tinning.....	2.50	.94		3.44
Heating.....	193.44	115.71	86.53	395.68
Gas engine.....	11.00	3.48		14.48
Miscellaneous.....	2.88			2.88
Materials drawn by janitor.....				
Total.....	365.98	185.61	86.53	638.12
<i>Orr School, No. 122.</i>				
Carpentering.....	73.69	123.74		197.43
Painting.....	12.32	8.38		20.70
Tinning.....	2.06	.67		2.73
Heating.....	1.38	1.21	20.38	22.97
Total.....	89.45	134.00	20.38	243.83

Public schools, District of Columbia, 1910-11, repairs to buildings, heating apparatus, etc.—Continued.

Class of work.	Labor.	Material.	Contract.	Total.
<i>Patterson School, No. 93.</i>				
Carpentering.....	\$26.66	\$11.51		\$38.17
Painting.....	55.00	15.33		70.33
Tinning.....	2.75	2.97		5.72
Heating.....	.50		\$108.81	109.31
Miscellaneous.....	12.03	1.98		14.01
Material drawn by janitor.....		2.30		2.30
Total.....	96.94	34.09	108.81	239.84
<i>Payne School, No. 98.</i>				
Carpentering.....	19.75	136.02		155.77
Painting.....	98.31	26.87		125.18
Heating.....			13.56	13.56
Grading.....	36.34			36.34
Gas engine.....	11.00	5.60		16.60
Total.....	165.40	168.49	13.56	347.45
<i>Peabody School, No. 31.</i>				
Carpentering.....	18.63	18.19		36.82
Painting.....	3.44	2.10		5.54
Tinning.....	13.63	5.88		19.51
Steamfitting.....	16.95	4.98		21.93
Material drawn by janitor.....		2.27		2.27
Total.....	52.65	33.42		86.07
<i>Petworth School, No. 131.</i>				
Carpentering.....	35.71	23.36		59.07
Painting.....	38.94	37.35		76.29
Tinning.....	29.88	5.97		35.85
Heating.....	16.00	5.39	13.64	35.03
Gas engine.....	12.50	7.15		19.65
Total.....	133.03	79.22	13.64	225.89
<i>Phelps School, No. 57.</i>				
Carpentering.....	123.57	204.17		327.74
Painting.....	14.76	3.54		18.30
Tinning.....	13.00	5.20		18.20
Heating.....	1.00		25.95	26.95
Miscellaneous.....	.75			.75
Total.....	153.08	212.91	25.95	391.94
<i>Phillips School, No. 81.</i>				
Carpentering.....	32.76	10.79		43.55
Painting.....	5.32	1.50		6.82
Tinning.....	86.76	28.88		115.64
Heating.....			24.31	24.31
Total.....	124.84	41.17	24.31	190.32
<i>Pierce School, No. 94.</i>				
Carpentering.....	19.72	208.44		228.16
Painting.....	52.19	5.82		58.01
Tinning.....	40.09	7.99		48.08
Heating.....			17.82	17.82
Material drawn by janitor.....		.74		.74
Total.....	112.60	222.99	17.82	353.41
<i>Polk School, No. 86.</i>				
Carpentering.....	36.94	96.34		133.28
Painting.....	2.82	2.18		5.00
Heating.....			121.67	121.67
Material drawn by janitor.....		.58		.58
Total.....	39.76	99.10	121.67	260.53
<i>Potomac School, No. 17.</i>				
Carpentering.....	1.50	.80		2.30
Painting.....	14.47	11.29		25.76
Gas engine.....	7.00			7.00
Total.....	22.97	12.09		35.06

Public schools, District of Columbia, 1910-11, repairs to buildings, heating apparatus, etc.—Continued.

Class of work.	Labor.	Material.	Contract.	Total.
<i>Powell School, No. 157.</i>				
Carpentering.....	\$6.38			\$6.38
Painting.....	4.76	\$5.01		9.77
Tinning.....	1.38	.56		1.94
Motor.....	7.00	1.48		8.48
Total.....	19.52	7.05		26.53
<i>Randall School, No. 28.</i>				
Carpentering.....	53.82	149.94		203.76
Painting.....	121.75	35.39		157.14
Heating.....	.88	1.26	\$29.29	31.43
Material drawn by janitor.....		1.15		1.15
Total.....	176.45	187.74	29.29	393.48
<i>Reno School, No. 139.</i>				
Carpentering.....	49.00	27.29		76.29
Painting.....	7.50	2.48		9.98
Tinning.....	2.00	.63		2.63
Heating.....	62.13	4.28	20.61	87.02
Total.....	120.63	34.68	20.61	175.92
<i>Reservoir School, No. 110.</i>				
Carpentering.....	24.00	13.03		37.03
Painting.....	2.38	1.07		3.45
Heating.....	4.06		10.71	14.77
Total.....	30.44	14.10	10.71	55.25
<i>Ross School, No. 146.</i>				
Carpentering.....	17.81	3.49		21.30
Painting.....	4.50	1.02		5.52
Tinning.....	14.76	3.12		17.88
Heating.....	1.87	1.58	7.36	10.81
Motor.....	2.50			2.50
Material drawn by janitor.....		.78		.78
Total.....	41.44	9.99	7.36	58.79
<i>Seaton School, No. 22.</i>				
Carpentering.....	109.94	155.52		265.46
Painting.....	10.29	2.74		13.03
Heating.....			184.12	184.12
Steam fitting.....	24.19	17.80		41.99
Material drawn by janitor.....		3.91		3.91
Total.....	144.42	179.97	184.12	508.51
<i>Simmons School, No. 134.</i>				
Carpentering.....	11.13	7.08		18.21
Painting.....	2.00	1.39		3.39
Tinning.....	1.50	1.34		2.84
Heating.....			4.57	4.57
Gas engine.....	7.50	3.70		11.20
Material drawn by janitor.....		2.98		2.98
Total.....	22.13	16.49	4.57	43.19
<i>Slater School, No. 80.</i>				
Carpentering.....	110.35	206.38		316.73
Tinning.....	14.25	2.01		16.26
Heating.....		1.08		1.08
Material drawn by janitor.....		.74		.74
Total.....	124.60	210.21		334.81
<i>Smallwood School, No. 64.</i>				
Carpentering.....	36.50	99.32		135.82
Painting.....	5.44	1.46		6.90
Tinning.....	4.00	.27		4.27
Heating.....	1.82		16.35	18.17
Material drawn by janitor.....		.20		.20
Total.....	47.76	101.25	16.35	165.36

Public schools, District of Columbia, 1910-11, repairs to buildings, heating apparatus, etc.—Continued.

Class of work.	Labor.	Material.	Contract.	Total.
<i>H. Smothers School, No. 56.</i>				
Carpentering.....	\$29.38	\$111.92	.....	\$141.30
<i>Stanton School, No. 138.</i>				
Carpentering.....	36.57	16.29	.....	52.86
Painting.....	3.22	1.23	.....	4.45
Tinning.....	1.50	1.07	.....	2.57
Heating.....	.....	.....	\$9.61	9.61
Miscellaneous.....	.....	2.50	.....	2.50
Total.....	41.29	21.09	9.61	71.99
<i>Stevens School, No. 97.</i>				
Carpentering.....	41.35	200.49	.....	241.84
Painting.....	148.26	30.06	.....	178.32
Steam fitting.....	5.51	.28	1.25	7.04
Material drawn by janitor.....	.....	1.17	.....	1.17
Total.....	195.12	232.00	1.25	428.37
<i>Sumner School, No. 19.</i>				
Carpentering.....	39.36	5.80	.....	45.16
Painting.....	16.72	1.99	.....	18.71
Tinning.....	34.69	15.67	.....	50.36
Heating.....	.....	.....	1,467.00	1,467.00
Steam fitting.....	356.44	218.93	.....	575.37
Total.....	447.21	242.39	1,467.00	2,156.60
<i>Syphax School, No. 126.</i>				
Carpentering.....	11.13	12.17	.....	23.30
Painting.....	2.50	.59	.....	3.09
Heating.....	1.50	1.09	.....	2.59
Steam fitting.....	25.73	2.48	.....	28.21
Miscellaneous.....	1.00	.01	.....	1.01
Total.....	41.86	16.34	.....	58.20
<i>Takoma School, No. 118.</i>				
Carpentering.....	151.44	61.75	.....	213.19
Heating.....	3.06	2.26	.....	5.32
Gas engine.....	7.00	3.44	.....	10.44
Total.....	161.50	67.45	.....	228.95
<i>Taylor School, No. 88.</i>				
Carpentering.....	54.88	106.96	.....	161.84
Painting.....	5.38	1.92	.....	7.30
Tinning.....	7.19	2.75	.....	9.94
Heating.....	.....	.....	48.67	48.67
Total.....	67.45	111.63	48.67	227.75
<i>Tenley School, No. 102.</i>				
Carpentering.....	67.00	93.34	.....	160.34
Painting.....	3.94	1.55	.....	5.49
Tinning.....	6.25	.55	.....	6.80
Steamfitting.....	11.01	7.04	.....	18.05
Material drawn by janitor.....	.....	.36	.....	.36
Total.....	88.20	102.84	.....	191.04
<i>Thomson School, No. 156.</i>				
Carpentering.....	13.06	5.42	.....	18.48
Heating.....	8.94	.63	.....	9.57
Material drawn by janitor.....	.....	3.23	.....	3.23
Total.....	22.00	9.28	.....	31.28
<i>Threlkeld School, No. 14.</i>				
Carpentering.....	35.50	89.25	.....	124.75
Painting.....	.97	.99	.....	1.96
Heating.....	106.13	65.11	1.46	172.70
Total.....	142.60	155.35	1.46	299.41

Public schools, District of Columbia, 1910-11, repairs to buildings, heating apparatus, etc.—Continued.

Class of work.	Labor.	Material.	Contract.	Total.
<i>Toner School, No. 114.</i>				
Carpentering.....	\$2.50			\$2.50
Painting.....	7.00	\$3.53		10.53
Heating.....			\$11.62	11.62
Gas engine.....	22.00	13.27		35.27
Total.....	31.50	16.80	11.62	59.92
<i>Towers School, No. 59.</i>				
Carpentering.....	20.13	16.86		36.99
Painting.....	6.50	1.48		7.98
Tinning.....		.27		.27
Heating.....			10.00	10.00
Miscellaneous.....	2.00	.43		2.43
Total.....	28.63	19.04	10.00	57.67
<i>Twining School, No. 45.</i>				
Carpentering.....	16.25	6.27		22.52
Painting.....	1.50	.72		2.22
Tinning.....	17.25	3.94		21.19
Heating.....			105.48	105.48
Gas engine.....	11.75	4.84		16.59
Total.....	46.75	15.77	105.48	168.00
<i>Tyler School, No. 83.</i>				
Carpentering.....	5.00	98.39		103.39
Painting.....	1.00	.30		1.30
Tinning.....	18.56	6.31		24.87
Heating.....			4.11	4.11
Material drawn by janitor.....		.43		.43
Total.....	24.56	105.43	4.11	134.10
<i>Van Buren School, No. 87.</i>				
Carpentering.....	248.38	261.05		509.43
Painting.....	9.81	3.21		13.02
Heating.....	.50	.43	25.19	26.12
Miscellaneous.....		.75		.75
Material drawn by janitor.....		.74		.74
Total.....	258.69	266.18	25.19	550.06
<i>Van Buren Annex, No. 38.</i>				
Carpentering.....	29.06	15.21		44.27
<i>Van Ness School, No. 150.</i>				
Carpentering.....	72.06	6.74		78.80
Painting.....	1.00	.30		1.30
Tinning.....	1.38	1.86		3.24
Heating.....			9.31	9.31
Gas engine.....	11.50	8.70		20.20
Miscellaneous.....	1.81			1.81
Total.....	87.75	17.60	9.31	114.66
<i>Wallach School, No. 4.</i>				
Carpentering.....	16.56	12.26		28.82
Painting.....	9.25	.68		9.93
Steamfitting.....	24.60	2.39		26.99
Material drawn by janitor.....		5.44		5.44
Total.....	50.41	20.77		71.18
<i>Webb School, No. 121.</i>				
Carpentering.....	35.63	21.08		56.71
Painting.....	3.00	.29		3.29
Tinning.....	11.00	3.46		14.46
Heating.....		.50		.50
Gas engine.....	12.00	4.02		16.02
Total.....	61.63	29.35		90.98

Public schools, District of Columbia, 1910-11, repairs to buildings, heating apparatus, etc.—Continued.

Class of work.	Labor.	Material.	Contract.	Total.
<i>Webster School, No. 51.</i>				
Carpentering.....	\$12.22	\$3.56		\$15.78
Painting.....	4.78	1.99		6.77
Tinning.....	18.50	9.84		28.34
Steam fitting.....	5.56	.04		5.60
Slate treads.....			\$165.00	165.00
Material drawn by janitor.....		3.73		3.73
Total.....	41.06	19.16	165.00	225.22
<i>Weightman School, No. 54.</i>				
Carpentering.....	163.70	213.79		377.49
Painting.....	4.22	1.16		5.38
Tinning.....	21.00	8.48		29.48
Heating.....	2.50	1.15	4.65	8.30
Steam fitting.....	.63	.70		1.33
Total.....	192.05	225.28	4.65	421.98
<i>Western High School, No. 117.</i>				
Carpentering.....	274.70	200.75		475.45
Painting.....	12.85	4.94		17.79
Tinning.....	22.69	4.24		26.93
Heating.....			504.00	504.00
Steam fitting.....	38.15	20.65	18.95	77.75
Material drawn by janitor.....		6.91		6.91
Total.....	348.39	237.49	522.95	1,108.83
<i>Wheatley School, No. 136.</i>				
Carpentering.....	5.63	5.73		11.36
Painting.....	2.85	1.74		4.59
Tinning.....	20.44	35.14		55.58
Heating.....	.25	1.15	7.05	8.45
Gas engine.....	10.50	5.03		15.53
Material drawn by janitor.....		2.41		2.41
Total.....	39.67	51.20	7.05	97.92
<i>Wilson School, No. 89.</i>				
Carpentering.....	64.19	35.71		99.90
Painting.....	2.50	.52		3.02
Tinning.....	8.25	10.67		18.92
Heating.....			11.31	11.31
Material drawn by janitor.....		1.59		1.59
Total.....	74.94	48.49	11.31	134.74
<i>Woodburn School, No. 101.</i>				
Painting.....	6.09	3.56		9.65
Tinning.....	3.00	.55		3.55
Heating.....	2.75	.20		2.95
Material drawn by janitor.....		.22		.22
Total.....	11.84	4.53		16.37
<i>Wormley School, No. 49.</i>				
Carpentering.....	28.06	51.06		79.12
Painting.....	113.50	30.53		144.03
Heating.....			28.37	28.37
Gas engine.....	22.50	8.22	19.00	49.72
Material drawn by janitor.....		1.15		1.15
Total.....	164.06	90.96	47.37	302.39

SUMMARY.

Total amount accounted for on written orders.....	\$41,430.50
Miscellaneous time consumed in shop and various schools.....	7,619.63
Material drawn for use in shop for various schools.....	2,273.42
Purchase of forage.....	404.90
Telephone service, Mr. Storey's residence.....	28.00
Horseshoeing.....	60.50
Material on hand.....	7,696.83
Unexpended.....	186.22
Total.....	\$60,000.00

Public schools, District of Columbia, 1910-11, repairs to buildings, fire protection, etc.

[Appropriation, \$37,500.]

Name of school.	Labor.	Material.	Contract.	Total.
Adams.....	\$92.31	\$61.42		\$153.73
Ambush.....	211.02	138.25		349.27
Amidon.....	45.84	40.91		86.75
Arthur.....	14.75	4.83		19.58
Bannaker.....	294.91	123.33		418.24
Bennings.....	70.79	26.25	\$375.00	472.04
Berret.....	12.88	23.62		36.50
Birney.....	5.44	4.70		10.14
Blair.....	227.26	144.24		371.50
Blake.....	335.19	172.29		507.48
Blow.....	2.06	16.01		18.07
Bowen, A.....	355.30	189.61		544.91
Brent.....	293.14	153.36		446.50
Brightwood.....	331.60	152.70		484.30
Bruce.....	322.49	166.57		489.06
Buchanan.....	112.77	74.65		187.42
Burrville.....	6.00	6.01		12.01
Business High.....	6.97	.99		7.96
Central High.....	2.50	5.99		8.49
Carbery.....	311.17	130.32		441.49
Chevy Chase.....	108.00	113.29		221.29
Congress Heights.....	12.38	4.22		16.60
Congress Heights annex.....	12.38	4.32		16.70
Cooke, H. D.....	106.75	61.89		168.64
Corcoran.....	11.00	18.02		29.02
Cranch.....		.33		.33
Curtis.....	8.00			8.00
Deanwood.....	86.00	58.96		144.96
Dent.....	7.91	3.34		11.25
Eastern High.....	6.50	4.80		11.30
Edmonds.....	4.13	19.13		23.26
Emery.....	334.24	195.14		529.38
Force.....	4.50	1.21		5.71
Franklin.....	1.50			1.50
Gage.....	15.54	17.09		32.63
Gales.....	2.00	.33		2.33
Garnet.....	22.50	12.00		34.50
Garrison.....	14.00	4.27		18.27
Giddings.....	326.74	231.39		558.13
Grant.....	14.75	22.15		36.90
Henry.....	124.67	55.47		180.14
Hubbard.....	284.46	152.87		437.33
Hyde.....	7.25	13.20		20.45
Jackson.....	253.43	151.27		404.70
Jefferson.....	5.50	2.64		8.14
Johnson.....	286.52	234.01		520.53
Jones.....	1.50	.32		1.82
Ketcham.....	.50	.87		1.37
Langdon.....	7.25	15.83		23.08
Langston.....	42.19	11.49		53.68
Lenox.....	84.09	63.81		147.90
Lincoln.....	.50	1.70		2.20
Logan.....	2.00	6.28		8.28
Magruder.....	247.64	142.50		390.14
Monroe.....	4.50			4.50
Montgomery.....	6.18	11.36		17.54
Morgan.....	11.19	10.41		21.60
Morse.....	15.75	8.73		24.48
McKinley.....	2.50	1.16		3.66
Patterson.....	544.65	258.81		803.46
Peabody.....	11.47	12.58		24.05
Petworth.....	68.12	14.00		82.12
Phelps.....	341.44	259.12		600.56
Phillips.....	301.29	197.22		498.51
Pierce.....	85.21	40.68		125.89
Polk.....	17.19	21.76		38.95
Potomac.....	19.25	20.43		39.68
Reno.....	147.88	129.75		277.63
Reservoir.....	5.50	7.64		13.14
Ross.....	14.56	15.27		29.83
Slater.....	39.15	55.56		94.71
Simmons.....	2.50	.16		2.66
Smallwood.....	96.65	75.81		172.46
Stanton.....	77.50	30.54		108.04
Syphax.....	264.40	197.76		462.16
Takoma.....	40.75	50.36		91.11
Threlkeld.....	24.75	4.67		29.42
Towers.....	4.00	3.04		7.04
Twining.....	325.99	151.07		477.06
Tyler.....	377.72	226.21		603.93

Public schools, District of Columbia, 1910-11, repairs to buildings, fire protection, etc.—Continued.

Name of school.	Labor.	Material.	Contract.	Total.
Van Buren.....	\$1.39	\$0.34	.....	\$1.73
Wallach.....	11.25	7.36	.....	18.61
Webb.....	10.50	6.26	.....	16.82
Weightman.....	259.92	134.18	.....	394.10
Western High.....	654.64	362.39	\$179.00	1,196.03
Wheatley.....	10.50	11.04	.....	21.54
Wilson.....	76.25	61.28	.....	137.53
Woodburn.....	501.86	272.52	.....	774.38
Wormley.....	17.28	14.21	.....	31.49

	Labor.	Material.	Total.
Doors of coal vaults were covered with metal at the following schools: Adams, Ambush, Bowen, A., Bruce, Brightwood, Blake, Carbery, Gar- rison, Giddings, Jackson, Logan, Madison, Magruder, Monroe, Patterson Phelps, Phillips, Smallwood, Towers, Twining, Tyler, Van Buren, and Weightman.....	\$173.06	\$125.17	\$298.23
Brass kick plates were put on doors at the following schools: Ambush, Ban- naker, Bell, Bradley, Corcoran, Harrison, Jackson, Logan, Maury, Mad- ison, Monroe, Phelps, Phillips, Pierce, and Taylor.....	36.00	51.30	87.30
Gangways were put in and doors put on coal vaults at the following schools: Johnson, Magruder, Phelps, and Weightman.....	35.00	5.20	40.20
New doors of brick partitions in basement were painted at the following schools: Adams, Amidon, Johnson, Lenox, Patterson, Phillips, Polk, Tyler, and Wilson.....	12.78	4.29	17.07
New doors were constructed and put in at the following schools: Ambush, Bannaker, Bell, Brent, Bradley, Corcoran, Central High, Eastern High, Grant, Harrison, Jones, Jackson, Logan, Maury, Monroe, Morse, Payne, Phillips, Phelps, Pierce, Slater, Taylor, Twining, Tyler, Van Buren, Weightman, Western High, and Wormley.....	2,920.23	1,752.01	4,672.34
Fire gongs and extinguishers put up in schools where none were already installed.....	221.50	3,469.85	3,691.35

SUMMARY.

Total accounted for on orders.....	\$25,188.81
Patterns for coal-vault openings.....	8.00
Sharpening picks.....	1.50
Altering coalhole frame and cover patterns.....	3.00
Horseshoeing.....	36.75
Purchase of autographic register supplies.....	80.37
Miscellaneous time consumed in shop on various schools.....	4,560.35
Material used in shop for various schools.....	1,151.85
Material on hand.....	6,439.88
Unexpended.....	29.49
Total.....	\$37,500.00

Fire Department, District of Columbia, 1911 (repairs to engine houses).

[Appropriation, \$10,000.]

Class of work.	Labor.	Material.	Contract.	Total.
<i>No. 1 engine house.</i>				
Carpentering.....	\$31.00	\$23.59	.....	\$54.59
Painting.....	1.50	.54	.....	2.04
Tinning.....	.....	1.48	.....	1.48
Plumbing.....	6.63	7.64	.....	14.27
Material drawn by captain.....	.....	14.68	.....	14.68
Total.....	39.13	47.93	.....	87.06
<i>No. 2 engine house.</i>				
Carpentering.....	168.57	44.16	.....	212.73
Painting.....	19.31	18.48	.....	37.79
Heating.....	.....	23.20	.....	23.20
Miscellaneous.....	2.50	.47	.....	2.97
Material drawn by captain.....	.....	9.15	.....	9.15
Total.....	190.38	95.46	.....	285.84

Fire Department, District of Columbia, 1911 (repairs to engine houses)—Continued.

Class of work.	Labor.	Material.	Contract.	Total.
<i>No. 4 engine house.</i>				
Carpentering.....	\$55.00	\$67.01	.....	\$122.01
Painting.....	60.38	15.34	.....	75.72
Plumbing.....	8.19	16.72	.....	24.91
Material drawn by captain.....		2.97	.....	2.97
Total.....	123.57	102.04	.....	225.61
<i>No. 5 engine house.</i>				
Carpentering.....	59.38	41.86	.....	101.24
Plumbing.....	1.50	.96	.....	2.46
Total.....	60.88	42.82	.....	103.70
<i>No. 6 engine house.</i>				
Carpentering.....	114.00	69.52	.....	183.52
Painting.....	15.50	6.49	.....	21.99
Plumbing.....	9.57	6.70	.....	16.27
Miscellaneous.....	63.21	46.32	.....	109.53
Iron horse stalls.....			\$432.00	432.00
Material drawn by captain.....		3.82	.....	3.82
Total.....	202.28	132.85	432.00	767.13
<i>No. 7 engine house.</i>				
Carpentering.....	26.63	22.16	.....	48.79
Painting.....	298.72	107.93	.....	406.65
Tinning.....	.75	.27	.....	1.02
Plumbing.....	3.07	2.49	.....	5.56
Material drawn by captain.....		9.24	.....	9.24
Total.....	329.17	142.09	.....	471.26
<i>No. 8 engine house.</i>				
Carpentering.....	79.19	161.29	.....	240.48
Painting.....	56.80	26.88	.....	83.68
Tinning.....	17.87	4.88	.....	22.75
Plumbing.....	5.57	.23	.....	5.80
Material drawn by captain.....		21.45	.....	21.45
Total.....	159.43	214.73	.....	374.16
<i>No. 9 engine house.</i>				
Carpentering.....	58.75	34.83	.....	93.58
Painting.....	137.38	47.82	.....	185.20
Plumbing.....	2.50	2.09	.....	4.59
Steamfitting.....	1.25	.63	.....	1.88
Put up iron gates.....	16.82	4.12	.....	20.94
Material drawn by captain.....		8.73	.....	8.73
Total.....	216.70	98.22	.....	314.92
<i>No. 10 engine house.</i>				
Carpentering.....	128.68	109.06	.....	237.74
Painting.....	5.44	5.48	.....	10.92
Tinning.....	4.13	1.51	.....	5.64
Plumbing.....	1.69		.....	1.69
Heating.....		1.50	.....	1.50
Material drawn by captain.....		9.25	.....	9.25
Total.....	139.94	126.80	.....	266.74
<i>No. 11 engine house.</i>				
Carpentering.....	10.18	11.55	.....	21.73
Plumbing.....	5.81	1.73	.....	7.54
Total.....	15.99	13.28	.....	29.27
<i>No. 12 engine house.</i>				
Carpentering.....	41.97	60.85	.....	102.82
Painting.....	41.38	16.58	.....	57.96
Tinning.....	17.75	3.39	.....	21.14
Material drawn by captain.....		2.10	.....	2.10
Total.....	101.10	82.92	.....	184.02

Fire Department, District of Columbia, 1911 (repairs to engine houses)—Continued.

Class of work.	Labor.	Material.	Contract.	Total.
<i>No. 13 engine house.</i>				
Carpentering.....	\$23.06	\$32.32		\$55.38
Painting.....	83.18	25.34		108.52
Plumbing.....	17.39	8.75		26.14
Heating.....	8.38	1.91		10.29
Repairs to electric fixtures.....	1.75	.06		1.81
Material drawn by captain.....		.49		.49
Total.....	133.76	68.87		202.63
<i>No. 14 engine house.</i>				
Carpentering.....	55.56	31.38		86.94
Painting.....	3.47	2.60		6.07
Heating.....	21.44	5.44		26.88
Plumbing.....	5.50	13.31		18.81
Horse-releasing device.....	11.50	34.10		45.60
Material drawn by captain.....		1.47		1.47
Total.....	97.47	88.30		185.77
<i>No. 15 engine house.</i>				
Carpentering.....	42.25	47.02		89.27
Painting.....	2.94	1.50		4.44
Heating.....	8.75	2.71		11.46
Plumbing.....	4.19	.31		4.50
Material drawn by captain.....		16.16		16.16
Total.....	58.13	67.70		125.83
<i>No. 16 engine house.</i>				
Carpentering.....	86.03	51.44		137.47
Plumbing.....	20.76	35.43		56.19
Repair cover over ash bin.....	12.00	12.00		24.00
Total.....	118.79	98.87		217.66
<i>No. 17 engine house.</i>				
Carpentering.....	225.69	282.45		508.14
Painting.....	30.97	16.09		47.06
Plumbing.....	12.02	18.29		30.31
Removing rubbish.....	20.25			20.25
Material drawn by captain.....		3.10		3.10
Total.....	288.93	319.93		608.86
<i>No. 18 engine house.</i>				
Carpentering.....	40.25	44.34		84.59
Plumbing.....	12.01	3.34		15.35
Material drawn by captain.....		.24		.24
Total.....	52.26	47.92		100.18
<i>No. 19 engine house.</i>				
Carpentering.....	8.00	8.57		16.57
Painting.....	34.95	22.25		57.20
Plumbing.....	9.25	27.40		36.65
Material drawn by captain.....		2.54		2.54
Total.....	52.20	60.76		112.96
<i>No. 20 engine house.</i>				
Carpentering.....	184.60	72.29		256.89
Painting.....	1.88	.75		2.63
Tinning.....	12.68	1.65		14.33
Plumbing.....	10.88	6.36		17.24
Grading.....	57.19			57.19
Material drawn by captain.....		3.95		3.95
Total.....	267.23	85.00		352.23
<i>No. 21 engine house.</i>				
Carpentering.....	34.06	34.31		68.37
Tinning.....	12.88	1.61		14.49
Plumbing.....	1.00			1.00
Steam fitting.....	.38	.50		.88
Material drawn by captain.....		1.44		1.44
Total.....	48.32	37.86		86.18

Fire Department, District of Columbia, 1911 (repairs to engine houses)—Continued.

Class of work.	Labor.	Material.	Contract.	Total.
<i>No. 22 engine house.</i>				
Carpentering.....	\$35.66	\$22.60	.....	\$58.26
Tinning.....	11.81	1.02	.....	12.83
Plumbing.....	2.75	1.48	.....	4.23
Material drawn by captain.....		12.55	.....	12.55
Total.....	50.22	37.65	.....	87.87
<i>No. 23 engine house.</i>				
Painting.....	.97	1.00	.....	1.97
Plumbing.....	6.00	1.56	.....	7.56
Material drawn by captain.....		.80	.....	.80
Total.....	6.97	3.36	.....	10.33
<i>No. 1 truck house.</i>				
Carpentering.....	96.85	74.50	.....	171.35
Tinning.....	25.50	15.79	.....	41.29
Plumbing.....	3.75	3.59	.....	7.34
Two channel tracks.....			\$75.00	75.00
Material drawn by captain.....		29.34	.....	29.34
Total.....	126.10	123.22	75.00	324.32
<i>No. 2 truck house.</i>				
Carpentering.....	77.63	111.81	.....	189.44
Painting.....	41.60	17.80	.....	59.40
Plumbing.....	6.57	4.54	.....	11.11
Miscellaneous.....	61.99	43.12	.....	105.11
New horse stalls.....			398.00	398.00
Material drawn by captain.....		7.89	.....	7.89
Total.....	187.79	185.16	398.00	770.95
<i>No. 3 truck house.</i>				
Carpentering.....	221.94	113.07	.....	335.01
Painting.....	32.39	16.74	.....	49.13
Tinning.....	8.25	4.07	.....	12.32
Plumbing.....	21.45	141.06	.....	162.51
Miscellaneous.....	26.60	39.95	.....	66.55
Six stall guards.....			42.00	42.00
Total.....	310.63	314.89	42.00	667.52
<i>No. 4 truck house.</i>				
Carpentering.....	33.06	38.12	.....	71.18
Painting.....	28.63	10.84	.....	39.47
Tinning.....	4.50	4.11	.....	8.61
Plumbing.....	16.39	192.80	.....	209.19
Rewire stalls, etc.....			36.78	36.78
Material drawn by captain.....		23.40	.....	23.40
Total.....	82.58	269.27	36.78	388.63
<i>No. 5 truck house.</i>				
Carpentering.....	30.88	34.56	.....	65.44
Plumbing.....	6.32	3.64	.....	9.96
Heating.....		4.50	.....	4.50
Total.....	37.20	42.70	.....	79.90
<i>No. 6 truck house.</i>				
Carpentering.....	126.35	37.49	.....	163.84
Painting.....	104.10	55.04	.....	159.14
Plumbing.....	5.19	1.27	.....	6.46
Heating.....		2.00	.....	2.00
Total.....	235.64	95.80	.....	331.44
<i>No. 7 truck house.</i>				
Carpentering.....	13.25	22.87	.....	36.12
Painting.....	83.06	47.47	.....	130.53
Plumbing.....	4.51	.94	.....	5.45
Heating.....	8.00	.07	.....	8.07
Material drawn by captain.....		.09	.....	.09
Total.....	108.82	71.44	.....	180.26

Fire Department, District of Columbia, 1911 (repairs to engine houses)—Continued.

Class of work.	Labor.	Material.	Contract.	Total.
<i>No. 9 truck house.</i>				
Carpentering.....	\$3. 00			\$3. 00
<i>No. 10 truck house.</i>				
Carpentering.....	20. 00	\$8. 41		28. 41
Painting.....	1. 44	. 45		1. 89
Plumbing.....	3. 01	2. 04		5. 05
Miscellaneous.....	5. 01	3. 86		8. 87
Total.....	29. 46	14. 76		44. 22
<i>No. 1 chemical house.</i>				
Carpentering.....	61. 88	44. 72		106. 60
Painting.....	119. 56	76. 48		196. 04
Tinning.....	29. 75	4. 76		34. 51
Installing gasoline tank.....	12. 82	13. 33		26. 15
Horse-releasing device, etc.....	20. 20	8. 52		28. 72
Material drawn by captain.....		1. 38		1. 38
Total.....	244. 21	149. 19		393. 40
<i>No. 8 chemical house.</i>				
Carpentering.....	2. 00	11. 08		13. 08
Painting.....	50. 81	14. 47		65. 28
Tinning.....		. 83		. 83
Plumbing.....	1. 31	1. 59		2. 90
Material drawn by captain.....		6. 34		6. 34
Total.....	54. 12	34. 31		88. 43
<i>No. 5 chemical house.</i>				
Carpentering.....	76. 34	50. 01		126. 35
Painting.....	25. 18	7. 17		32. 35
Tinning.....	22. 63	8. 11		30. 74
Repairs to gasoline engine.....	4. 00	1. 50		5. 50
Repairs to pump.....	14. 00	4. 50		18. 50
Material drawn by captain.....		1. 45		1. 45
Total.....	142. 15	72. 74		214. 89
<i>Fire department stables.</i>				
Material drawn by captain.....		24. 05		24. 05

SUMMARY.

Total accounted for on written orders.....	\$8,711. 22
Miscellaneous time consumed in shop and in houses.....	815. 25
Material drawn from shop for various uses at houses.....	132. 13
Purchase of mules.....	35. 20
Forage.....	75. 65
Purchase of supplies for autographic register.....	25. 76
Telephone service, Mr. Storey's residence.....	12. 00
Material on hand.....	189. 79
Unexpended.....	3. 00
Total.....	\$10,000. 00

Metropolitan police, District of Columbia, 1911 (repairs to stations).

[Appropriation, \$5,500.]

Class of work.	Labor.	Material.	Contract.	Total.
<i>No. 1 police station.</i>				
Carpentering.....	\$33.44	\$8.96		\$42.40
Painting.....	21.22	10.54		31.76
Tinning.....	.50	.27		.77
Plumbing.....	8.77	4.57		13.34
Heating.....	11.88	10.21		22.09
Material drawn by captain.....		.20		.20
Total.....	75.81	34.75		110.56
<i>No. 2 police station.</i>				
Carpentering.....	100.67	29.03		129.70
Painting.....	11.72	4.22		15.94
Plumbing.....	23.38	141.20		164.58
Re-lay tile.....			\$16.50	16.50
Material drawn by captain.....		2.06		2.06
Total.....	135.77	176.51	16.50	328.78
<i>No. 3 police station.</i>				
Carpentering.....	76.91	66.98		143.89
Painting.....	213.19	71.32		284.51
Plumbing.....	9.38	6.42		15.80
Heating.....	2.25	.74		2.99
Conceal wires.....	7.45	5.45		12.90
Material drawn by captain.....		7.59		7.59
Total.....	309.18	158.50		467.68
<i>No. 4 police station.</i>				
Carpentering.....	31.75	4.43		36.18
Painting.....	123.04	44.96		168.00
Tinning.....	7.50	3.11		10.61
Plumbing.....	14.13	14.98		29.11
Heating.....	12.38	14.99		27.37
Material drawn by captain.....		.48		.48
Total.....	188.80	82.95		271.75
<i>No. 5 police station.</i>				
Carpentering.....	6.25	7.37		13.62
Plumbing.....	4.44	.90		5.34
Material drawn by captain.....		19.80		19.80
Total.....	10.69	28.07		38.76
<i>No. 6 police station.</i>				
Carpentering.....	53.50	19.12		72.62
Plumbing.....	16.00	2.39		18.39
Heating.....	1.00	2.53		3.53
Material drawn by captain.....		7.32		7.32
Total.....	70.50	31.36		101.86
<i>No. 7 police station.</i>				
Carpentering.....	42.68	2.10		44.78
Painting.....	1.40	.75		2.15
Tinning.....	13.00	4.71		17.71
Plumbing.....	6.75	6.90		13.65
Heating.....	4.50	.75		5.25
Material drawn by captain.....		2.13		2.13
Total.....	68.33	17.34		85.67
<i>No. 8 police station.</i>				
Carpentering.....	98.00	44.45		142.45
Painting.....	250.01	86.56		336.57
Tinning.....	6.19	2.74		8.93
Plumbing.....	24.94	139.95		164.89
Heating.....	16.50	76.89		93.39
Material drawn by captain.....		10.03		10.03
Total.....	395.64	360.62		756.26

Metropolitan police, District of Columbia, 1911 (repairs to stations)—Continued.

Class of work.	Labor.	Material.	Contract.	Total.
<i>No. 9 police station.</i>				
Carpentering.....	\$63.82	\$24.80	.....	\$88.62
Painting.....	105.84	38.34	.....	144.18
Tinning.....	5.50	5.67	.....	11.17
Plumbing.....	31.77	214.08	.....	245.85
Heating.....	3.50	.84	.....	4.34
Material drawn by captain.....	.....	.43	.....	.43
Total.....	210.43	284.16	.....	494.59
<i>No. 10 police station.</i>				
Carpentering.....	13.25	7.05	.....	20.30
Painting.....	157.27	87.09	.....	244.36
Plumbing.....	18.38	57.62	.....	76.00
Heating.....	15.50	38.74	.....	54.24
Clean smokestack.....	2.00	.....	.....	2.00
Material drawn by captain.....	.....	1.35	.....	1.35
Total.....	206.40	191.85	.....	398.25
<i>No. 11 police station.</i>				
Carpentering.....	165.51	207.70	.....	373.21
Painting.....	10.59	19.84	.....	30.43
Tinning.....	79.81	71.31	.....	151.12
Plumbing.....	43.38	20.51	.....	63.89
Material drawn by captain.....	.....	13.32	.....	13.32
Total.....	299.29	332.68	.....	631.97
<i>Substation T.</i>				
Painting.....	158.65	89.67	.....	248.32
<i>Harbor precinct.</i>				
Carpentering.....	11.00	8.95	.....	19.95
Tinning.....	10.50	25.24	.....	35.74
Total.....	21.50	34.19	.....	55.69

SUMMARY.

Total accounted for on written orders.....	\$3,990.14
Miscellaneous time not accounted for on orders.....	503.32
Material drawn for use at various stations.....	194.63
Telephone service, Mr. Storey's residence.....	8.00
Forage.....	53.39
Purchase of supplies for autographic register.....	21.34
Unexpended.....	2.24
Material on hand.....	726.94
Total.....	\$5,500.00

Public schools, District of Columbia, 1911 (repairs to plumbing).

[Allotment, \$11,506.12.]

No.	Name of school.	Labor.	Material.	Contract.	Total.
27	Abbot.....	\$5.50	.....	.....	\$5.50
65	Adams.....	7.94	\$1.11	.....	9.05
53	Addison.....	13.13	.18	.....	13.31
42	Amidon.....	12.00	1.00	\$29.00	42.00
79	Ambush.....	47.38	5.20	.....	52.58
129	Armstrong Manual Training.....	79.73	190.06	.....	269.79
70	Arthur.....	19.94	.48	.....	20.42
39	Banneker.....	14.89	8.94	.....	23.83
78	Bell.....	5.50	.....	.....	5.50
48	Benning.....	2.00	12.14	.....	14.14
66	Berret.....	.56	.....	.....	.56
127	Birney.....	17.75	4.05	.....	21.80
50	Blair.....	25.19	7.59	.....	32.78
61	Blake.....	37.31	17.23	.....	54.54
145	Blow.....	58.26	5.68	.....	63.94
109	Bowen, A.....	10.50	4.76	.....	15.26
123	Bowen, S. J.....	.75	.85	.....	1.60
60	Bradley.....	3.44	.....	.....	3.44
46	Brent.....	42.13	21.06	.....	63.19

Public schools, District of Columbia, 1911 (repairs to plumbing)—Continued.

No.	Name of school.	Labor.	Material.	Contract.	Total.
75	Briggs	\$1.50			\$1.50
124	Brightwood	6.19	\$2.33		8.52
151	Brightwood Park	15.75	89.02		104.77
103	Brookland	2.62	1.13		3.75
112	Bruce				
155	Bryan	5.50			5.50
96	Buchanan	13.13	.20		13.33
144	Business High	77.94	16.54		94.48
58	Carbery	32.12	11.10		43.22
148	Cardozo	18.31	71.11		89.42
43	Central High	89.16	142.57		231.73
113	Chevy Chase	163.69	95.36		259.05
111	Congress Heights	6.75	1.32		8.07
30	Cook, J. F.	10.45	2.64		13.09
154	Cooke, H. D.	30.44	8.47	\$15.20	54.11
68	Corcoran	16.50	1.54		18.04
137	Cranch	34.69	65.57		100.26
26	Curtis	48.00	16.58		64.58
52	Dennison	18.81	3.70		22.51
120	Dent	92.69	77.98		170.67
99	Douglas	3.82	.15		3.97
85	Eastern High	26.26	6.04		32.30
160	Eaton	32.37	7.22		39.59
116	Eckington	13.56	4.05		17.61
135	Edmonds	57.90	63.61		121.51
133	Emery	27.19	19.88		47.07
92	Fillmore	1.50			1.50
32	Force	65.93	146.08		212.01
15	Franklin	23.18	44.08		67.26
141	French, B. B. .....	.50			.50
143	Gage	13.07	1.23		14.30
36	Gales	31.89	9.14		41.03
34	Garnet	81.20	44.67		125.87
76	Garrison	2.25	1.63		3.88
63	Giddings	47.19	26.76		73.95
41	Grant	71.31	80.64		151.95
105	Greenleaf	5.25	2.47		7.72
37	Hamilton	2.50			2.50
84	Harrison	3.44	.05		3.49
107	Hayes	13.07			13.07
33	Henry	23.90	3.94		27.84
115	Hilton	10.57	3.82		14.39
119	Hubbard	7.00	1.42		8.42
147	Hyde	33.38	4.08		37.46
69	Jackson	36.13	16.90		53.03
23	Jefferson	31.38	17.02		48.40
95	Johnson	93.39	20.25		113.64
77	Jones	35.94	15.21		51.15
149	Ketcham	41.69	13.57	11.40	66.66
108	Langdon	6.75	.71		7.46
132	Langston	69.01	80.94		149.95
67	Lenox	16.19	16.81		33.00
18	Lincoln	12.33			12.33
90	Logan	5.56			5.56
124	Lovejoy	173.95	134.36		308.31
142	Ludlow	14.44			14.44
130	McKinley Manual Training	19.76	2.66		22.42
82	M Street High	22.69	17.57		40.26
71	Madison	27.56	3.22		30.78
62	Magruder	5.13	5.57		10.70
55	Maury	18.82	10.63		29.45
16	McCormick				
72	Monroe	26.01	15.31		41.32
140	Montgomery	4.13			4.13
125	Morgan	70.23	162.03		232.26
44	Morse	39.56	76.94		116.50
40	Mott (old)	25.50	8.31		33.81
153	Mott (new)	2.06	18.00		20.06
122	Orr	27.63	34.28		61.91
53	Patterson	41.07	25.00		66.07
98	Payne	1.82	.48		2.30
31	Peabody	5.50	.78		6.28
131	Petworth	55.39	132.82		188.21
57	Phelps	16.13			16.13
81	Phillips	45.44	46.40		91.84
86	Polk	16.45	1.02		17.47
17	Potomac	3.75	.60		4.35
157	Powell	5.69	5.42		11.11
28	Randall	38.39	16.44		54.83
110	Reservoir	12.50	1.57		14.07
146	Ross	7.69	1.37		9.06
22	Seaton	39.62	28.09		67.71
134	Simmons	16.51	3.12	15.20	34.83

Public schools, District of Columbia, 1911 (repairs to plumbing)—Continued.

No.	Name of school.	Labor.	Material.	Contract.	Total.
80	Slater.....	\$17.62	\$1.93		\$19.55
64	Smallwood.....	2.06	1.06		3.12
138	Stanton.....	1.13	9.15		10.28
97	Stevens.....	46.51	5.78		52.29
19	Sumner.....	42.38	15.74		58.12
126	Syphax.....	99.39	175.85		275.24
118	Takoma.....	31.75	13.02		44.77
88	Taylor.....	1.38			1.38
156	Thomson.....	52.38	127.84		180.22
14	Threlkeld.....	17.69	1.28		18.97
114	Toner.....	.75			.75
59	Towers.....	2.88	3.03		5.91
45	Twining.....	21.76	72.29		94.05
83	Tyler.....	8.06	1.07		9.13
87	Van Buren.....	18.75	6.18		24.93
150	Van Ness.....	11.63	13.38		25.01
4	Wallach.....	6.37			6.37
51	Webster.....	36.08	1.60		37.68
121	Webb.....	20.69	16.49		37.18
54	Weightman.....	13.81	3.73		17.54
117	Western High.....	306.25	278.98		585.23
136	Wheatley.....	10.12	2.63		12.75
89	Wilson.....	.69	.03		.72
49	Wormley.....	68.19	69.12		137.31

SUMMARY.

Total accounted for on written orders.....	\$6,839.36
Miscellaneous time not accounted for on orders.....	596.52
Miscellaneous material used in shop.....	35.38
Horseshoeing.....	47.15
Forage.....	159.72
Purchase of buggy.....	125.50
Purchase of mules.....	74.80
Purchase of horse.....	226.30
Material on hand.....	3,401.39
Unexpended.....	0.00
Total.....	\$11,506.12

Courts, District of Columbia, 1910-11, police court, repairs to buildings.

[Appropriation, \$500.]

Class of work.	Labor.	Material.	Contract.	Total.
Carpentering.....	\$25.69	\$2.00		\$27.69
Painting.....	4.94	319.49		324.43
Plumbing.....	3.37	2.90		6.27
Retubing east boiler.....			\$132.00	132.00
Material drawn by engineer.....		.45		.45
Total.....	34.00	324.84	132.00	490.84

SUMMARY.

Total accounted for.....	\$490.84
Pro rata share of purchase of mules.....	4.40
Repairing lock.....	1.50
Unexpended.....	3.26
Total.....	500.00

Report of inspections of steam boilers, public schools, 1910-11.

School.	Boilers.	High pressure.	Low pressure.	Length.	Diameter.	Tubes.	Size of tubes.	Manholes.	Size of manhole.	Tested.	Safety blows.	Date of inspection.	Remarks.
				<i>Ft.</i>	<i>In.</i>		<i>In.</i>		<i>Inches.</i>				
Armstrong, Manual Training.	2	2	1	15½	56	3½	1	11 by 15	170 110	Sept. 16, 1910			All defective tubes re-
Business High.	3	1	16	66	66	3	2	12 by 16	160 85	July 28, 1910			placed.
Do.	2	1	16	66	66	3	2	12 by 16	160 85	do.			New dead plate for fire box.
Do.	3	1	16	66	66	3	2	12 by 16	160 85	do.			Do.
Brookland.	2	1	12	42	52	3	1	11 by 15	100 50	July 29, 1910			One manhole dog.
Do.	1	1	12	42	38	3	1	11 by 15	70 30	do.			Good condition.
Brightwood.	1	1	12	42	43	3	1	11 by 15	60 25	Aug. 21, 1910			Do.
Bowen, S. J.	1	1	14	54	64	3	1	11 by 15	100 50	Sept. 19, 1910			Do.
Central High.	4	3	1	52	64	3	1	11 by 15	100 25	Sept. 26, 1910			Do.
Do.	1	1	1	1	1	1	1	1	1	1			Do.
Crane.	2	2	10	42	38	3	1	11 by 15	60 40	Sept. 23, 1910			All defective tubes re-
Curtis.	2	2	12	54	65	3	2	11 by 15	60 25	Aug. 12, 1910			placed.
Dennison.	2	2	10	42	49	3	2	11 by 15	110 25	Aug. 8, 1910			Good condition.
Eastern High.	2	2	12	46	52	3	1	11 by 15	65 30	Sept. 21, 1910			Do.
Emery.	2	2	14	54	54	3	1	11 by 15	65 35	Aug. 8, 1910			All defective tubes re-
Force.	2	2	12	42	46	3	1	11 by 15	70 30	Aug. 15, 1910			placed.
Franklin.	2	2	12	48	48	3	1	11 by 15	60 30	Aug. 17, 1910			Good condition.
Gales.	2	2	10	42	49	3	1	11 by 15	65 30	Sept. 18, 1910			Do.
Garnet.	2	2	12	42	46	3	1	11 by 15	60 30	Aug. 11, 1910			Do.
Grant.	2	2	10	42	42	3	1	11 by 15	65 30	Aug. 9, 1910			Do.
Henry.	2	2	12	46	42	3	1	11 by 15	70 25	June 19, 1910			Indirect coils renewed.
Jefferson.	2	2	12	42	46	3	1	11 by 15	65 25	Sept. 14, 1910			Good condition.
Lincoln.	2	2	10	42	38	3	1	11 by 15	60 30	Sept. 21, 1911			Two dead plates for fire
M Street High.	2	2	12	54	36	4	2	11 by 15	60 40	June 20, 1910			box.
McKinley Manual Training.	4	4							2 165 110 3 170 110 4 180 115 5 185 115	Sept. 27, 1910 do. do. do.			Both boilers retubed.
Peabody.	2	2	14	54	54	3	1	11 by 15	60 35	Aug. 30, 1910			Good condition.
Stevens.	2	2	12	42	46	3	1	11 by 15	65 30	Aug. 11, 1910			Do.
Seaton.	2	2	10	42	40	3	2	11 by 15	70 30	Sept. 22, 1910			Do.
Summer.	2	2	12	48	54	3	1	11 by 15	65 30	Sept. 19, 1910			Hand-hole plate and dog.
Syphax.	1	1	14	54	52	3	1	11 by 15	100 50	Sept. 20, 1910			Both boilers retubed.
Tenley.	1	1	10	45	46	3	1	11 by 15	70 30	Aug. 18, 1910			Two new boilers installed
Wallach.	2	2	12	46	52	3	1	11 by 15	40 30	Sept. 22, 1910			Good condition.
Webster.	2	2	14	54	54	3	1	11 by 15	60 25	Aug. 9, 1910			Do.
Western High.	2	2	16	60	82	3	2	11 by 15	100 50	Oct. 26, 1910			Do.
													Retubed old boiler.

¹ 25 horse-power upright.² Boiler No. 1.³ Boiler No. 2.⁴ Boiler No. 3.⁵ Boiler No. 4.

REPORT OF THE INSPECTOR OF PLUMBING.

WASHINGTON, August 15, 1911.

SIR: I have the honor to submit the twenty-ninth annual report of the work performed by the division of plumbing inspection for the fiscal year ending June 30, 1911.

The following table shows the work performed by the outdoor force of assistant inspectors:

	1910	1911
Preliminary examinations.....	8,197	8,120
Work in old houses.....	7,559	8,245
Work in new houses.....	10,724	8,469
Gas fitting.....	3,047	2,314
Lead services.....	950	771
Peppermint tests and final inspections.....	3,687	4,355
Terra-cotta sewers, new.....	98	73
Terra-cotta sewers repaired.....	532	332
Main sewers tapped.....	1,730	1,375
Notices served.....	212	607
Examinations on complaints.....	4,113	7,963
Total.....	40,849	42,624

To the above should be added inspections by the head of the office, which were of a supervisory nature, 352; inspections on construction work for the District, 1,127, and by the principal assistant inspector of plumbing, which consisted of consultations with material men, examination of plumbing and gas fixtures, investigations of illegal plumbing work, visits to the police court and police stations, and other similar work, which does not show directly in the results given under police-court cases or elsewhere, 1,932. The total of these inspections should be added to the above table, which will give a grand total of 46,035 inspections made by the outdoor force, being an increase over the number of inspections during the previous year of 1,082.

This table also shows the growth of inspection work since 1894:

1894-95.....	5,708	1903-4.....	25,637
1895-96.....	8,677	1904-5.....	27,337
1896-97.....	14,112	1905-6.....	30,185
1897-98.....	17,550	1906-7.....	32,190
1898-99.....	17,600	1907-8.....	29,547
1899-1900.....	17,405	1908-9.....	39,404
1900-1901.....	19,965	1909-10.....	44,953
1901-2.....	32,621	1910-11.....	46,035
1902-3.....	25,297		

During the past year a number of refinements have been introduced in the plumbing regulations, but no changes of any moment except the introduction of a new method of connection with the public sewers and the provision for an intercepting trap for garages, both of which measures were taken at the request of the sewer division for the protection of the public sewers.

During the past year six series of tests were made on a specially designed soil stack with glass traps, glass sections, etc. These tests were made for the purpose of determining disturbances in soil stacks as well as back pressure and siphonage exerted on ordinary trap connections both with and without vents. Such tests which have been made in other cities have as a rule introduced discharges from large tanks or other arbitrary means of determining pressures and vacuums. In our work, however, we have adhered strictly to actual fixture discharges and actual conditions to be met in usual construction as far as possible, and it is believed the results obtained are for this reason more accurate and dependable.

The first serious change in the regulations following out tests of this character was made last year, when, on the recommendation of this office, the running trap and fresh-air inlet on the main house sewer were done away with at a saving of probably \$50,000 a year to the property holders of the District, to say nothing of the saving to the District itself on plumbing construction work. Another change recommended at the close of the fiscal year is the lengthening of the prescribed distance a fixture trap may be located from its rising vent line. This will not result in any direct reduction in the cost of plumbing in buildings, but by making construction work easier and the plumbing work somewhat simpler, does actually become a financial advantage to the property holders in a small way. The District of Columbia has always been conservative in matters of this character, but it is confidently expected that within the next four or five years, if means are provided for continuing the tests mentioned above, that some little simplification of system will result to the advantage of both plumbers and house owners.

EXTRA TIME.

During the past year a total of 657 hours' extra time, or about 87½ days, has been given the District by the various employees of this office without compensation. This is a fair indication of the pressure of work on this office, and it would seem to invite earnest consideration of any measures for the relief of this office.

The following table shows the temporary and per diem employees of this office during the past fiscal year, the number of days employed, the rates, totals, and appropriations:

F. Berton Ridenour, skilled laborer, 289 days, at \$2.25 per day.....	\$650.25
Will Rinehard, unskilled laborer, 112 days, at \$1.50 per day.....	168.00
Will Rinehard, unskilled laborer, 111 days, at \$1.75 per day.....	194.25
Reuben Ware, unskilled laborer, 7 days, at \$1.50 per day.....	10.50
E. Z. Hazen, skilled laborer, 6 days, at \$2.25 per day.....	13.50
Total.....	1,036.50

The above appropriation being "Public schools, District of Columbia, 1911, repairs to plumbing."

F. Berton Ridenour, skilled laborer, 13 days, at \$2.25 per day..... \$29.25

The appropriation being "Health department, District of Columbia, 1911, drainage of lots."

POLICE COURT CASES.

Total number of warrants obtained, 103, as follows:

Violation of plumbing regulations—

Master plumbers.....	41
Owners of property.....	46
Unlicensed plumbers.....	11
Unlicensed gas fitters.....	3
Hiring unlicensed plumbers.....	1
Excavating without permit.....	1
Total.....	103

Disposition of above cases:

Fines, aggregating \$75 were imposed in.....	5
Forfeited collaterals, aggregating \$130, in.....	12
Personal bonds in.....	2
Nolle pressed (compliance with commissioners' order).....	66
Nolle pressed by order of commissioners.....	4
Nolle pressed by order of inspector of plumbing.....	1
Pending.....	13
Total.....	103

This office has had during the past year exceptionally good results in the prosecutions of its cases in the public court. No cases were lost, dismissed, or otherwise went against the District, although a total of five cases were nolle pressed when it became evident it would be useless to proceed with the complaints. This success in police-court work is due largely to the fact that one man in this office, principal assistant inspector of plumbing, is charged with the preparation and presentation of all police-court cases, which insures that the cases are always in experienced hands.

OFFICE WORK.

The following is a table of the details of the office work performed during the past year and a comparison with the two previous years:

	1909	1910	1911
Official letters.....	1,143	980	2,542
Unofficial letters.....	4,211	7,204	5,240
Indorsements.....	2,761	2,172	2,905
Reports, inspectors, etc.....			9,643
Indexes.....			1,223
Plans prepared.....	34	26	30
Inspections and consultations.....			3,441
Specifications prepared.....	36	30	45
Plans and specifications revised.....	12	4	6
Examination plans new buildings.....	2,860	2,421	2,273
Examination repair applications.....	2,225	4,466	2,907
Two-cent postage stamps used.....	3,228	3,558	4,300
One-cent postage stamps used.....	192	499	2,297
Post cards used.....		818	591

COMPULSORY DRAINAGE.

There were a total of 75 cases handled during the year; 33 of these were received from the health office, 19 were on hand at the commencement of the year, and the balance were "nuisance" cases originating either in this office or other divisions of the engineer department. These were disposed of as follows:

Cases returned to health office.....	4
Cases referred to condemnation board.....	3
Old cases pending.....	26
Cases received too late for action.....	14
Buildings torn down.....	2
Work done by owner.....	28
Work done by District.....	8
Total.....	75

Of the old cases pending, including those received too late for action during the fiscal year, there are 16 premises which are now under notice and it is expected that a large part of these notices will result in work being done during the next three months. Attention is invited to the proportionately great number of cases where the work was done by the owner after the cases were referred to this office for consideration. This is the direct result of many personal conferences with agents, owners, and attorneys, and the painstaking care with which the conditions are explained to them.

PLUMBING IN THE PUBLIC SCHOOL BUILDINGS.

The appropriation of \$40,000 for repairs to plumbing in the public school buildings for 1911 has been expended as follows:

General remodeling:

Bowen.....	\$3, 565. 83
Hilton.....	3, 663. 63
Congress Heights.....	4, 971. 08
Reno.....	3, 501. 51

\$15, 702. 05

Minor work at—

Grant.....	1, 059. 85
Business High.....	1, 560. 00
Central High.....	1, 310. 00
Hyde.....	60. 00
Lovejoy.....	540. 00
Bruce.....	612. 00
Toner.....	576. 00
Addison.....	356. 00
Curtis.....	414. 00
Force.....	280. 00
Garnet.....	667. 21
Simmons.....	576. 00
Montgomery.....	720. 00
Eckington.....	684. 00
Brookland.....	324. 00
Dent.....	648. 00

10, 387. 06

Drafting materials, printing, etc.....	21. 02
Inspection, draftsman's time, miscellaneous materials, etc.....	1, 411. 12
Superintendent of repairs.....	11, 500. 00

12, 932. 14

Total.....	39, 021. 25
Unexpended balance.....	978. 75
Total appropriation.....	40, 000. 00

This office has recently recommended that the remaining work of remodeling plumbing in the public schools be placed under the control of the municipal architect, who is specifically charged by law with supervising all repairs in the public schools and other District structures. During the 12 years this office has had the

remodeling of plumbing in the public schools all Smead systems or other obsolete plumbing constructions have been removed from the public schools of the District and replaced with modern individual seat-action water-closets and special type of standard school urinal, drinking fountains, etc. The plumbing in the public schools of the District, while not ornamental or unnecessarily expensive, is of the highest grade and most substantial and permanent in character, and in this respect at the present time the public schools of the District are not excelled by the schools of any city in the United States.

Two of the fixtures in general use in the public schools were designed in this office and are now made by many manufacturers from a set of drawings furnished by the District. The overflow flush ventilated urinal of slate was first designed by Mr. Charles B. Ball, formerly head of this office, and has been improved from year to year until at the present day it is probably the most sanitary and satisfactory urinal for school or factory use, and it is installed at approximately the same cost as the very cheapest bowl urinal.

The "bubble" type of drinking fountain was introduced in the schools at the suggestion of and in cooperation with this office about eight years ago. There was considerable opposition at first to what was considered an innovation, but the work went steadily on, and since about three years ago, by order of the commissioners, no other type of fixture has been installed in the schools.

PUBLIC-CONVENIENCE STATIONS.

Two public-convenience stations have now been in operation for more than four years and one additional station for a period of nine months. The great number of patrons and the unquestioned want that they have filled in the daily life of the business part of the city clearly indicates that they are a necessity as an item of municipal furniture, and their use clearly points out the urgent need of several more stations. Stations should be placed as soon as possible at Ninth and F, Fifteenth Street and New York Avenue, Thirty-second and M Streets and Peace Monument. These stations should be approximately the same capacity as the stations now in use, in charge of a caretaker and of the same permanent character of construction. It is also desirable that several smaller stations be erected near parks and other congested points. Such stations could be arranged so as to be periodically visited by a watchman or some other person in authority and could probably be constructed for a reasonable sum of money. These smaller stations are really needed at the Aqueduct Bridge, Pennsylvania Avenue Bridge, southeast, Calvert Street Bridge, Ninth Street and Florida Avenue, and several locations in or near Rock Creek Park. It is the unanimous opinion of authorities in charge of public-comfort stations in other cities that these structures should be either under the direct care of an attendant at all times or so located that the attendant of some other public work in the immediate vicinity would have it more or less constantly under observation.

During the last year the patrons of the convenience stations numbered approximately 2,000,000, and the receipts from the use of the pay compartments and clean towels amounted to over \$2,200.

PUBLIC BATHS.

This office has recommended for several years the installation of public baths in the District of Columbia. Washington to-day is almost the only city of any size in this country where one can not obtain a municipal bath either free or at a minimum cost. Washington has only the municipal swimming pool, open a short time during the summer season, and which is really not primarily for bathing but for athletic purposes. Many of the larger cities of this country have been furnishing free baths to their citizens for 15 years. The construction and maintenance of municipal bathhouses of the shower type should not be confused in any manner with the playgrounds' movement, as such bathhouses are primarily for the accommodation of adults. They should be built in the most congested centers, accessible to the greatest number of people within a short distance, whereas playgrounds are not generally located at points believed to be available for public bathhouse purposes.

Several newspapers have recently taken up the question here, but so far no results have accrued. It is the belief of this office that the establishment of public bathhouses would be the greatest single agency in the advancement of alley conditions in Washington and that within a short period of years they would amply pay for themselves in increased vigor and intelligence on the part of these alley residents, who form an important element in the commercial life of the city, and also the largest proportion of our paupers, mendicants, free hospital patients, and prisoners.

PUBLIC-SCHOOL BATHS.

I beg to again invite attention to a recommendation which this office has made for several years, that swimming be made compulsory in the public schools. Every year the city is shocked to read of young persons either in or lately graduates of our public schools who meet an untimely death in the waters adjacent to the city. If the art of swimming was compulsory in the schools, say, for the sixth grade, it would unquestionably be the cause of preventing probably more than half of these distressing summer accidents. Prominent educators all over the country are rapidly becoming advocates of this addition to the curriculum of the schools, being convinced that it is as necessary to fit a child to save itself for the benefit of the State as it is to fit him for business relations. The cost to the District of Columbia to educate a child to and through the eighth grade, including interest on plant, is \$350. This sum multiplied by the number of deaths during the last summer season directly traceable to a lack of the most elementary knowledge of swimming amounts to \$2,100, which is more than the average sum necessary to inaugurate and continue teaching the art of self-preservation to the District's wards. It would appear that this is merely a business proposition; that young men and women educated at the expense of the District are unquestionably an asset, and each has a definite value at least equal to the cost of the said education. The untimely death of one of these children simply has the effect of making the District's investment of no account.

In conclusion, I beg to commend to you the creditable and conscientious work that has been performed during the past year by the inspectors of the outside force and the men engaged in the office work, who have not hesitated to work many hours overtime as the public business appeared to demand it.

I also desire to acknowledge and extend my thanks for the hearty cooperation and earnest support extended to this office by the various officials with whom I have had the honor to officially associate.

Respectfully submitted.

A. R. MCGONEGAL,

Inspector of Plumbing, District of Columbia.

Capt. E. M. MARKHAM,

Corps of Engineers, U. S. Army,

Assistant to Engineer Commissioner, District of Columbia.

REPORT OF THE PLUMBING BOARD.

WASHINGTON, August 15, 1911.

SIR: I have the honor to submit the thirteenth annual report of the plumbing board covering the past fiscal year.

There were held during the year 24 sessions of the board for the examination of candidates for licensing as master plumbers and gas fitters. The total number of examinations held during the year is 57. The number of original candidates examined for licensing as master plumbers and gas fitters is 29, of whom 4 passed and 25 failed. Of the 28 who had been examined two or more times 12 passed and 16 failed. Included in the foregoing statement, 1 candidate for license as a master gas fitter failed on his first examination and 3 qualified on their second examination.

The large number of failures in their first examination appears to be due to the unfamiliarity of the candidate with the plumbing and gas fitting regulations, of such common rules of physics and hygiene as deal with the proper and safe method of supplying water to buildings and of removing water and sewage therefrom, and the proper method of supplying illuminating gas to buildings.

It is further noted that many of those who have failed were unable to demonstrate their ability to comprehend and interpret plans and drawings showing the arrangements and connections of pipes and fixtures and their skill in designing and constructing house plumbing and drainage in accordance with standard rules.

That the unsuccessful candidates, who have failed in their first examination, have recognized the necessity of developing the mind as well as the hands, is evidenced by the fact that a larger number passed on the second and subsequent examinations than those who appeared before the board the first time.

Very respectfully,

PETER C. SCHAEFER,

President.

RICHARD A. O'BRIEN,

Secretary.

Capt. E. M. MARKHAM,

Corps of Engineers, U. S. Army,

Assistant Engineer Commissioner.

REPORT OF THE INSPECTOR OF GAS AND METERS.

WASHINGTON, D. C., *August 16, 1911.*

Sir: I have the honor to transmit herewith a report of the work of this office during the fiscal year ended June 30, 1911.

The legal requirements in regard to the illuminating power and purity of the illuminating gas supplied to consumers in the District of Columbia provide, that the illuminating power of the gas shall be equal to 22 candles by the Bunsen photometer, using the Bray slit union burner No. 7, consuming 5 cubic feet of gas per hour, and such gas shall not contain more than 20 grains of sulphur in any form in 100 cubic feet, nor more than 5 grains of ammonia in any form in 100 cubic feet, and shall be free of the impurity known as hydrogen sulphide. Daily inspections are made of the gas supplied by the two companies.

For the purpose of carrying out the provisions of the law, one testing station is maintained at No. 1226 Wisconsin Avenue, in the Territory of the Georgetown Gas Light Co., and known as the Georgetown station, and three stations in the territory of the Washington Gas Light Co., located as follows: The central testing station and office headquarters, at the northeast corner of Tenth and D Streets NW.; the southeast station, at No. 500 D Street SE.; and the northwest station, which was located at No. 1335 Fourteenth Street, NW., until February 10, 1911, when the testing apparatus and equipment on that date were moved about one-half block north of the old location to No. 1405½ Fourteenth Street, northwest, where much better facilities were found.

The gas supplied by the Washington Gas Light Co. is a mixture in varying proportions of coal-gas and carburetted water gas, while the Georgetown Gas Light Co.'s product is a coal gas enriched with oil gas.

WASHINGTON GAS LIGHT CO.

ILLUMINATING POWER.

Eight hundred and fifty-seven official photometric tests of the gas supplied by the Washington Gas Light Co. gave a mean of 23.18 candlepower, with a maximum of 28.90 candles at the southeast testing station, on July 10, 1910, and a minimum of 18.72 candles at the same station on November 29, 1910.

The mean of 305 official tests at the central testing station was 22.66 candles, with a maximum of 27.85 candles on August 11, 1910, and a minimum of 18.79 candles on January 18, 1911. Two hundred and eighty-one tests at the southeast testing station gave a mean of 23.70 candles, with a maximum of 28.90 candles on July 12, 1910, and a minimum of 18.72 candles on November 29, 1910. At the northwest testing station, 271 tests gave a mean of 23.24 candles, with a maximum of 26.44 candles on May 29, 1911, and a minimum of 19.83 candles on February 20, 1911.

On one day the tests at all three stations showed the candle power to be below the legal requirement of 22 candles; on 15 days it was below the standard at two stations, and on 56 days it was below at some one station.

PURITY.

Ammonia.—The average amount of ammonia found in the gas at the central station was 0.12 of 1 grain in 100 cubic feet; the largest amount was 1.53 grains on July 30, 1910, and on 114 days the tests showed no ammonia present in the gas. At the southeast station the average amount of ammonia found was 0.51 of 1 grain in 100 cubic feet; the largest amount was 3.66 grains, on July 15, 1910, and on 24 days the tests showed no ammonia present.

Sulphur.—At the central station the mean amount of sulphur found in the gas was 8.31 grains in 100 cubic feet, with a maximum of 12.82 grains, on May 31, 1911, and a minimum of 6.65 grains on October 10, 1910. The mean amount of sulphur at the southeast station was 7.03 grains; maximum 13.56 grains, on April 13, 1911, and minimum 3.45 grains, on September 13, 1910. The amount of ammonia and total sulphur in the gas did not exceed the legal limit for these impurities at any time during the year.

Hydrogen sulphide.—This impurity was found in the gas on 22 days. These days occurred during the four months from December to March, inclusive; most of them during the first two months of this period, namely, December and January.

PRESSURE.

A continuous record of the gas pressure maintained in the street mains was obtained by means of an automatic pressure recording apparatus at each station. The daily fluctuation in pressure was about 1 inch at the central and northwest stations, while at the southeast station it was about fourteen-tenths of an inch. Occasionally greater variations than this occurred, but they existed for only a few minutes. The mean and extreme pressures recorded at the three stations are as follows:

Station.	Mean.	Maximum.	Minimum.
	<i>Inches.</i>	<i>Inches.</i>	<i>Inches.</i>
Central.....	2.63	4.20	1.40
Southeast.....	3.00	4.12	1.22
Northwest.....	2.98	4.80	1.35

SPECIFIC GRAVITY.

The specific gravity of the gas compared with air as unity was determined from time to time, and the means and extremes of the results thus obtained are as follows:

Station.	Mean.	Maximum.	Minimum.
Central.....	0.612	0.646	0.590
Southeast.....	.654	.677	.621
Northwest.....	.620	.632	.601

GEORGETOWN GAS LIGHT CO.

ILLUMINATING POWER.

The mean of 306 official photometric determinations of the gas supplied by the Georgetown Gas Light Co. was 22.83 candles; the maximum 25.30 candles on April 12, 1911, and the minimum 18 candles on October 7, 1910. On 51 days during the year the tests made by this office showed the illuminating power of the gas supplied by this company to be below the legal requirement of 22 candles. On most of these days the results were between 21 and 22 candles. These low results were distributed through every month in the year, except April.

PURITY.

Ammonia.—The average amount of ammonia found in the gas of this company was 2.80 grains in 100 cubic feet; the largest amount was 11.44 grains on July 26, 1910, and the smallest amount, 0.11 of 1 grain on June 21, 1911. On nine days the amount of ammonia exceeded the legal limit of 5 grains, these excessive amounts of ammonia occurring during the months of July, August, and October. For the last seven months of the year the amount of this impurity was kept well within the requirements.

Sulphur.—The mean amount of sulphur found in the gas of this company was 11.95 grains in 100 cubic feet; the maximum, 18.61 grains on January 10, 1911, and the minimum, 7.53 grains on June 5, 1911.

Hydrogen sulphide.—Daily tests for this impurity failed to indicate its presence in the gas at any time during the year.

GAS PRESSURE.

The automatic pressure register recorded a mean pressure of 2.30 inches, with a maximum of 4.12 inches and a minimum of 0.80 of 1 inch. The usual daily fluctuation in pressure was about fifteen-tenths of an inch.

SPECIFIC GRAVITY.

The mean of a number of determinations of the specific gravity of the gas supplied by this company compared with air as unity was 0.537; the maximum 0.562 and the minimum 0.498.

Monthly data in regard to the candlepower and purity of the gas supplied by the two gas companies will be found in Tables I to VIII following this report.

METER INSPECTIONS.

The law requires this office to inspect and prove all new gas meters before they may be placed in service, all repaired meters or those that for any purpose have had their tops removed and replaced, and any meter in service on request for such inspection by either the company or the consumer. Each inspection consists in an accurate determination of the rate of registration of the meter when the gas is passing through at the normal rate, at one-third the normal rate, and at twice the normal rate. A variation of 2 per cent from an absolutely correct registration is allowed at the normal rate and 3 per cent at the other two rates. All meters that show a greater variation than this are rejected.

During the last fiscal year this office inspected and proved 10,365 gas meters. This number exceeds by 30 per cent the highest number inspected in any former year in the history of the office. These meters were classified as follows: 5,247 new meters, 2,733 repaired, and 2,385 complaint meters.

Nine hundred and twenty-one of these complaint meters were inspected on complaint of gas consumers supplied by the Washington Gas Light Co. and called Washington consumers to distinguish them from consumers supplied by the Georgetown Gas Light Co. Of this number 439, or 47.67 per cent, were found to register fast, average error 5.69 per cent; 101, or 10.97 per cent, were slow, average error 4.77 per cent; and 381, or 41.37 per cent, registered within the requirements of the law and were pronounced correct.

One thousand three hundred and fifty-four meters were inspected on the request of the Washington Gas Light Co. Of this number 24, or 1.77 per cent, were fast, average error 4.99 per cent; 858, or 63.37 per cent, were slow, average error 22.81 per cent; 31, or 2.29 per cent, registered correctly according to law; and 441, or 32.57 per cent, failed to register any of the gas passing through them.

Ninety meters were inspected on request of consumers supplied by the Georgetown Gas Light Co. Of this number 39, or 43.33 per cent, were found to register fast, average error 5.03 per cent; 8, or 8.89 per cent, were slow, average error 12.22 per cent; and 43, or 47.78 per cent, complied with the law.

Twenty meters were removed from service and inspected on request of the Georgetown Gas Light Co. Four of these meters were found to be fast, average error 5.50 per cent; 4 were slow, average error 25 per cent; and 12 complied with the law.

Monthly summaries of the meter inspections will be found in Tables IX and X following this report.

FEES COLLECTED.

An inspection fee of 50 cents is collected for each new or complaint meter and 20 cents for each repaired meter. During the year just passed the fees thus collected amounted to \$4,357.10, which sum was paid to the collector of taxes, to be placed to the credit of the United States and the District of Columbia in equal parts, as directed by law.

DISTRICT GAS BILLS.

In compliance with C. O. No. 241807, dated September 28, 1903, the statements of all gas meters in District buildings were verified each month by this office, and the resulting gas bills received the certification of this office.

It is with pleasure I testify to the willing and efficient service rendered at all times by my associates in this office.

Respectfully submitted.

ELMER G. RUNYAN,
Inspector of Gas and Meters.

Capt. E. M. MARKHAM,
*Corps of Engineers, U. S. Army,
Assistant to the Engineer Commissioner,
District of Columbia.*

TABLE I.—*Illuminating power and purity of the gas supplied by the Washington Gas Light Co. from July 1, 1910, to June 30, 1911 (central testing station).*

Months.	Number of observations. ¹	Illuminating power in sperm candles.			Grains of ammonia in 100 cubic feet.			Grains of sulphur in 100 cubic feet.			Number of days hydrogen sulphide was present.
		Mean.	Maximum.	Minimum.	Mean.	Maximum.	Minimum.	Mean.	Maximum.	Minimum.	
July.....	25	22.30	24.12	20.60	0.27	1.53	None.	8.83	10.06	7.62	0
August.....	27	22.36	27.85	20.20	.23	.63	None.	8.37	9.40	7.07	0
September..	25	22.84	24.98	20.92	.19	.58	None.	7.59	8.39	6.92	0
October.....	26	22.81	24.15	20.59	.15	.40	None.	7.44	8.19	6.65	0
November...	25	22.00	23.75	19.65	.11	.26	None.	7.94	8.78	7.14	0
December...	26	21.99	23.71	20.17	.08	.29	None.	8.73	9.88	7.71	4
January.....	25	21.89	24.24	18.79	.07	.62	None.	9.36	10.86	8.42	4
February...	22	21.98	23.37	20.32	.02	.21	None.	8.79	12.51	7.80	2
March.....	27	22.55	23.90	20.16	.03	.21	None.	8.07	8.88	6.92	2
April.....	25	23.56	25.03	22.14	.04	.20	None.	7.89	8.81	7.33	0
May.....	26	24.10	25.44	22.39	.15	1.27	None.	8.82	12.82	7.48	0
June.....	26	23.39	24.98	22.14	.11	.33	None.	8.02	9.30	7.24	0
For the year..	305	22.66	27.85	18.79	.12	1.53	None.	8.31	12.82	6.65	12

¹ Each observation consists of 10 readings on the Bunsen photometer at intervals of 1 minute.TABLE II.—*Illuminating power and purity of the gas supplied by the Washington Gas Light Co. from July 1, 1910, to June 30, 1911 (southeast testing station).*

Months.	Number of observations. ¹	Illuminating power in sperm candles.			Grains of ammonia in 100 cubic feet.			Grains of sulphur in 100 cubic feet.			Number of days hydrogen sulphide was present.
		Mean.	Maximum.	Minimum.	Mean.	Maximum.	Minimum.	Mean.	Maximum.	Minimum.	
July.....	19	25.55	28.90	22.26	1.40	3.66	None.	6.68	7.27	5.87	0
August.....	23	25.83	28.74	21.04	.83	1.95	None.	5.41	7.25	4.27	0
September..	20	24.07	28.67	20.53	.81	1.29	0.41	4.88	6.21	3.45	0
October.....	26	22.67	26.05	20.03	.56	1.14	None.	5.21	6.08	3.61	0
November...	21	22.86	25.70	18.72	.61	.99	.07	8.83	10.18	7.02	0
December...	25	23.00	25.61	20.40	.43	.99	.07	8.96	10.05	7.60	7
January.....	25	22.55	23.96	19.32	.33	1.03	None.	8.75	9.91	8.02	1
February...	23	22.36	24.54	20.13	.36	1.17	None.	8.18	9.34	7.31	0
March.....	27	24.14	25.97	22.08	.26	.91	None.	7.86	9.58	6.80	0
April.....	23	24.00	25.64	22.08	.13	.43	None.	7.94	13.56	5.30	0
May.....	24	24.68	26.94	22.44	.22	.61	None.	5.37	6.30	5.00	0
June.....	25	23.18	25.34	22.07	.60	1.24	None.	6.41	7.44	5.38	0
For the year..	281	23.70	28.90	18.72	.51	3.66	None.	7.03	13.56	3.45	8

¹ Each observation consists of 10 readings on the Bunsen photometer at intervals of 1 minute.

TABLE III.—*Illuminating power and purity of the gas supplied by the Washington Gas Light Co. from July 1, 1910, to June 30, 1911 (northwest testing station).*

Months.	Number of observations. ¹	Illuminating power in sperm candles.			Grains of ammonia in 100 cubic feet.			Grains of sulphur in 100 cubic feet.			Number of days hydrogen sulphide was present.
		Mean.	Maximum.	Minimum.	Mean.	Maximum.	Minimum.	Mean.	Maximum.	Minimum.	
July.....	16	23.14	25.37	20.42	.....	.....	.....	.....	.....	.....	0
August.....	20	23.12	24.29	21.89	.....	.....	.....	.....	.....	.....	0
September..	19	23.06	24.62	21.28	.....	.....	.....	.....	.....	.....	0
October.....	26	22.88	24.76	19.94	.....	.....	.....	.....	.....	.....	0
November...	23	22.86	24.13	21.18	.....	.....	.....	.....	.....	.....	0
December...	23	22.91	24.74	21.69	.....	.....	.....	.....	.....	.....	2
January.....	23	23.52	26.26	22.00	.....	.....	.....	.....	.....	.....	5
February...	17	22.85	24.47	19.83	.....	.....	.....	.....	.....	.....	1
March.....	27	23.51	25.55	21.19	.....	.....	.....	.....	.....	.....	0
April.....	25	23.21	24.57	22.18	.....	.....	.....	.....	.....	.....	0
May.....	26	23.96	26.44	22.07	.....	.....	.....	.....	.....	.....	0
June.....	26	23.54	25.80	22.01	.....	.....	.....	.....	.....	.....	0
For the year..	271	23.24	26.44	19.83	.....	.....	.....	.....	.....	.....	8

¹ Each observation consists of 10 readings on the Bunsen photometer at intervals of 1 minute.TABLE IV.—*Illuminating power and purity of the gas supplied by the Georgetown Gas Light Co. from July 1, 1910, to June 30, 1911 (Georgetown testing station).*

Months.	Number of observations. ¹	Illuminating power in sperm candles.			Grains of ammonia in 100 cubic feet.			Grains of sulphur in 100 cubic feet.			Number of days hydrogen sulphide was present.
		Mean.	Maximum.	Minimum.	Mean.	Maximum.	Minimum.	Mean.	Maximum.	Minimum.	
July.....	25	22.41	24.13	20.09	9.25	11.44	7.61	12.91	14.25	11.86	0
August.....	27	22.56	24.96	19.77	4.04	6.39	2.22	12.39	15.26	8.08	0
September..	25	22.38	23.60	20.39	1.52	3.08	.42	12.32	14.20	8.61	0
October.....	26	22.59	24.33	18.00	4.44	11.25	1.43	11.61	12.90	10.24	0
November...	25	22.26	24.23	19.35	2.08	2.82	1.36	13.48	14.29	12.21	0
December...	26	22.10	24.31	19.43	1.15	1.97	.22	12.37	14.21	10.76	0
January.....	25	22.36	24.00	18.87	.80	1.18	.31	13.11	18.61	10.02	0
February...	23	22.63	24.03	20.50	2.62	4.24	.43	12.51	14.53	10.92	0
March.....	27	23.50	25.20	21.69	3.50	4.70	1.76	13.07	14.41	11.46	0
April.....	25	23.88	25.30	22.07	1.98	3.67	.92	11.38	16.78	8.71	0
May.....	26	23.74	25.14	21.66	2.87	4.48	1.76	10.19	11.73	8.32	0
June.....	26	23.47	24.66	21.47	1.53	2.99	.11	9.21	11.37	7.53	0
For the year..	306	22.83	25.30	18.00	2.80	11.44	.11	11.95	18.61	7.53	0

¹ Each observation consists of 10 readings on the Bunsen photometer at intervals of 1 minute.

TABLE V.—*Pressure of the gas supplied by the Washington Gas Light Co., as registered at the central testing station from July 1, 1910, to June 30, 1911.*

Months.	Mean pressure.	Maximum pressure.	Minimum pressure.
	<i>Inches.</i>	<i>Inches.</i>	<i>Inches.</i>
July.....	2.63	3.50	1.96
August.....	2.60	3.50	1.92
September.....	2.52	3.30	1.76
October.....	2.60	3.72	1.40
November.....	2.74	3.62	1.48
December.....	2.70	3.60	1.96
January.....	2.67	4.20	1.92
February.....	2.61	3.28	1.96
March.....	2.60	3.38	1.92
April.....	2.63	3.70	1.72
May.....	2.62	4.14	1.94
June.....	2.61	3.34	1.78
For the year.....	2.63	4.20	1.40

TABLE VI.—*Pressure of the gas supplied by the Washington Gas Light Co., as registered at the southeast testing station from July 1, 1910, to June 30, 1911.*

Months.	Mean pressure.	Maximum pressure.	Minimum pressure.
	<i>Inches.</i>	<i>Inches.</i>	<i>Inches.</i>
July.....	2.76	3.84	1.90
August.....	2.78	3.34	2.10
September.....	2.72	3.56	1.94
October.....	2.79	3.80	2.00
November.....	3.08	3.86	1.22
December.....	3.16	4.12	2.38
January.....	3.30	4.04	2.60
February.....	2.84	3.80	2.44
March.....	3.21	3.86	2.48
April.....	3.25	3.86	2.50
May.....	3.17	4.00	1.96
June.....	2.97	3.90	1.90
For the year.....	3.00	4.12	1.22

TABLE VII.—*Pressure of the gas supplied by the Washington Gas Light Co., as registered at the northwest testing station from July 1, 1910, to June 30, 1911.*

Months.	Mean pressure.	Maximum pressure.	Minimum pressure.
	<i>Inches.</i>	<i>Inches.</i>	<i>Inches.</i>
July.....	2.93	3.86	2.26
August.....	2.85	3.84	2.14
September.....	2.79	3.80	1.98
October.....	2.80	4.20	1.56
November.....	2.96	3.94	2.10
December.....	2.99	4.04	2.20
January.....	3.08	4.70	2.34
February.....	2.99	3.94	2.10
March.....	3.08	3.90	2.26
April.....	3.09	4.26	2.26
May.....	3.11	4.80	2.10
June.....	3.13	3.98	2.38
For the year.....	2.98	4.80	1.56

TABLE VIII.—*Pressure of the gas supplied by the Georgetown Gas Light Co., as registered at the Georgetown testing station from July 1, 1910, to June 30, 1911.*

Months.	Mean pressure.	Maximum pressure.	Minimum pressure.
	<i>Inches.</i>	<i>Inches.</i>	<i>Inches.</i>
July.....	2.09	3.34	1.14
August.....	2.21	3.88	1.10
September.....	1.98	3.26	1.16
October.....	2.07	3.10	1.18
November.....	2.00	3.26	.98
December.....	2.28	4.12	.80
January.....	2.53	3.68	1.26
February.....	2.60	3.90	1.26
March.....	2.71	4.00	1.64
April.....	2.47	3.48	1.30
May.....	2.36	3.44	1.34
June.....	2.27	3.84	1.12
For the year.....	2.30	4.12	.80

TABLE IX.—Meters inspected and proved for the Washington Gas Light Co. and for consumers of gas in Washington, from July 1, 1910, to June 30, 1911.

Months.	New meters for company.						Repaired meters for company.						Consumers' meters on complaint of consumers.						Consumers' meters on complaint of company.								
	Meters tested.	Number.	Fast.		Slow.		Correct.	Number.	Fast.		Slow.		Correct.	Number.	Fast.		Slow.		Correct.	Number.	Fast.		Slow.		Did not register.		
			Number.	Per cent.	Number.	Per cent.			Number.	Per cent.	Number.	Per cent.			Number.	Per cent.	Number.	Per cent.			Number.	Per cent.	Number.	Per cent.		Number.	Per cent.
July.....	435	184	2	4.00	...	...	184	153	1	4.00	2	3.25	150	50	15	4.79	9	2	5.63	26	48	...	28	26.57	3	17
August.....	558	336	1	4.00	...	1	333	157	...	...	3	4.50	155	17	4	4.21	9	2	4.16	11	48	...	26	22.87	2	19
September.....	818	607	1	4.00	...	...	604	159	...	...	3	3.55	156	11	7	4.33	11	2	2.66	9	34	...	21	16.59	5	20
October.....	894	641	...	...	...	...	640	170	...	...	2	3.83	168	49	28	4.33	13	4	5.05	31	41	...	16	22.77	...	14
November.....	837	559	1	3.33	...	...	556	178	...	...	...	3.83	168	49	28	4.20	13	4	4.41	30	29	...	23	27.10	2	30
December.....	654	249	2	5.50	...	...	247	188	...	...	...	...	178	11	85	5.38	10	4	9.04	60	62	...	27	24.76	5	30
January.....	801	124	...	...	...	...	124	188	...	...	...	...	188	155	83	6.14	29	4	2.33	90	177	...	8	4.41	...	82
February.....	734	274	...	...	...	...	273	245	...	...	...	...	188	132	193	6.14	29	4	5.52	90	177	...	79	30.81	8	51
March.....	1,044	474	2	6.99	...	...	470	251	...	...	5	6.46	245	91	55	5.52	11	5.58	25	18	285	...	3	5.67	...	51
April.....	987	451	1	6.66	...	...	430	309	...	...	1	6.00	34	14	8	4.56	2	4.00	18	18	285	...	6	5.66	...	83
May.....	872	475	1	3.33	...	...	473	208	...	...	...	...	308	52	20	8.31	5	4.06	27	136	285	...	3	4.66	...	48
June.....	951	450	1	5.33	...	...	449	300	...	...	...	...	300	28	2	4.25	3	4.22	23	23	173	...	133	22.88	1	40
Average.....	9,585	4,804	11	5.06	10.14	...	4,783	2,506	1	4.00	15	4.81	2,490	921	439	5.69	101	4.77	381	381	1,354	24	4.99	858	22.81	31	441
Total.....	9,585	4,804	11	5.06	10.14	...	4,783	2,506	1	4.00	15	4.81	2,490	921	439	5.69	101	4.77	381	381	1,354	24	4.99	858	22.81	31	441

TABLE X.—Meters inspected and proved for the Georgetown Gas Light Co. and for consumers of gas in Georgetown, from July 1, 1910, to June 30, 1911.

Months.	New meters for company.				Repaired meters for company.				Consumers' meters on complaint of consumers.				Consumers' meters on complaint of company.				Did not register.						
	Meters tested.	Fast.		Slow.	Correct.	Number.	Fast.		Slow.	Correct.	Number.	Fast.		Slow.	Correct.								
		Number.	Per cent.				Number.	Per cent.				Number.	Per cent.			Number.		Per cent.					
July.....	46	44			44							2				1	4.00					1	
August.....	24	18			18							4										1	
September.....	57	24			24		27			27		5	7.66	2	10.40	4	3.33	2	4.00				
October.....	126	120	1	5.00	119		48			48		12	5.00	1	4.33	6	4.66	1	4.66				
November.....	103	103	1	3.33	102		48			48		20	4.97	1	8.33	8	3.33	1	4.66			3	
December.....	41	13			13							11	5.10			3	5.38						
January.....	33	6			6		16	2	4.25	14		11	8			3	5.10						
February.....	66	30			30		26			26		17	4			3	4.41					2	
March.....	69	30			30		63	2	5.00	60		6	4			6	4.41						
April.....	53	44			44		47	3	5.16	44		9	2			5	4.99					1	
May.....	13	13			13							9	2			1	4.33					4	
June.....	89	85			85							3	1			1	4.33					1	
Average.....			4.17				227	7	4.85			90	39			8	12.22					25.00	
Total.....	780	443	2		441					219												4	12

REPORT OF THE PERMIT CLERK.

WASHINGTON, D. C., August 7, 1911.

SIR: I have the honor to submit the annual report of the work performed by the permit clerk's office, giving the character and number of permits issued during the fiscal year ending June 30, 1911.

Permits issued for which fees were paid.

	1910						1911						Total.
	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	
Water:													
Connections.....	163	211	166	131	119	114	132	130	276	186	251	210	2,095
Repairs.....	131	129	116	111	115	75	95	78	96	92	157	136	1,331
Sewer:													
Connections.....	131	255	170	206	176	139	150	124	274	227	230	245	2,327
Repairs.....	67	86	90	90	82	61	68	63	96	78	77	100	958
Gas:													
Connections.....	242	297	351	325	190	99	181	183	250	251	339	394	3,102
Repairs.....	24	12	38	34	44	30	30	12	25	12	27	21	309
Carriage blocks and hitching posts.....	1												1
Conduits.....	44	20	57	41	36	14	25	32	41	24	42	33	409
Gas mains.....	21	7	2	6	31	7	8	7	9	3	11	14	126
Guard stones.....	3	2	1	1	3				2	1	1	4	18
Manholes, connect with sewer and enlarge.....	20	18	20	22	22	19	16	17	25	11	30	17	237
Parking fences.....	44	31	22	31	33	9	9	22	44	58	66	51	430
Poles.....	24	28	29	22	44	35	19	25	14	38	19	25	332
Wagon tags.....										1,350	1,000	1,001	3,351
Total.....	915	1,096	1,062	1,030	895	602	733	693	1,152	2,331	2,256	2,251	15,016

Special permits issued without fee.

Specials.	1910						1911						Total.
	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	
Water, sewer, gas....	92	115	86	96	97	45	69	61	75	83	96	91	1,006
Blasting.....	2	1	3	4			11	2		2	3	1	29
Bridges across gutter.	3	9	1	7	5	1	2	1	4	3	7		43
Cables, aerial and overhead connections.....	15	41	28	33	39	19	15	11	23	18	29	16	287
Conduits, P. E. P. (no fee).....			1	2	13	1	1						18
Copings.....	93	88	53	119	29	1	15	23	85	115	132	111	864
Driveways.....	4	14	7	15	10	3	6	6	6	4	8	3	86
Engines, move.....	3	8	2	4	2	1	2	8	3	4	4	10	51
Leads, lay and repair	126	182	142	180	95	31	34	31	141	130	198	180	1,470
Parkings, grade.....	36	64	31	40	43	38	53	65	144	148	67	87	816
Parkings, pave.....	7	21	17	6	10		1	2	3	10	9	17	103
Parkings, railings re-new.....	18	16	14	14	11	5	6	14	51	29	21	32	231
Renewals.....	33	15	14	23	29	37	57	33	43	56	38	22	400
Roadways and alleys, close.....	1	4	2	1			2		1	8		2	21
Roadways, grade and repair.....	9	9	4	7	9	2		5	6	5	4	9	69
Sidewalks, grade and repair.....	9	4	6	3	4		11	4	6	7	13	10	77
Sidewalks, haul across.....	6	6	5	6	9	4	5	8	8	3	6	6	72
Sidewalks, lay.....	17	14	12	22	13	7	20	6	12	45	6	19	193
Sidewalk, roadways, and parkings, occupy.....	64	7	3		1	3	2	2	1	10	1	1	95
Steps on parkings.....	83	119	78	122	40	10	31	13	95	99	139	132	961
Stopcock boxes.....	8			8	3		8			8			32
Trees.....			4	3	3		1	1	2		3		17
United States Government.....	2	4	1	2	1		2	1	6			3	22
Walls, retaining.....	5	3	4	8	2	1	1		3	6	6	5	44

Special permits issued without fee—Continued.

Specials.	1910						1911						Total.
	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	
Water tables.....	32	44	23	14	9	4	4	.....	35	43	39	19	266
Wires, string.....	63	18	14	71	29	22	56	6	11	62	21	7	380
Steam and electric railways.....	2	2	6	2	3	3	5	.....	3	3	1	4	34
Miscellaneous.....	2	1	1	1	1	6	15	3	5	1	1	2	39
Wagon tags (no fee).....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	275
Total.....	735	809	562	813	507	244	435	306	772	902	852	789	8,001

During the year just passed there was an increase of \$1,178 in amount of money paid for permit fees.

Permits issued during the fiscal year were 23,017.

The following table shows the number of permits issued during the past 10 years and the amount paid for permit fees to the collector of taxes, District of Columbia, during that time:

Fiscal year.	Permits issued.	Fees paid.
1901-2.....	11,496	\$7,388
1902-3.....	12,559	7,930
1903-4.....	12,565	8,103
1904-5.....	13,908	9,518
1905-6.....	16,019	10,496
1906-7.....	15,820	10,134
1907-8.....	15,874	9,392
1908-9.....	19,895	12,064
1909-10.....	22,862	13,838
1910-11.....	23,017	15,016

One thousand nine hundred and fifty-four communications were referred to this office, briefs made on cards, permits issued when necessary, and reports made, papers indorsed, and returned to the respective divisions having supervision over the inspection of the work for which the permits were issued.

A daily report of all permits for excavations in the public space was forwarded to the engineer of highways.

Twelve thousand seven hundred and seventy-one index cards were made out, sorted according to streets, and filed.

During the past fiscal year the registration of "all horse-drawn vehicles used for business purposes" has been added to the duties assigned to the permit clerk's office, greatly increasing the work.

I take great pleasure in officially acknowledging the faithful, efficient, and valuable services rendered by the assistant permit clerk and the index clerk. During the year they have worked earnestly and under trying conditions, on account of the variety of permits issued, continuous attention to one thing being impracticable. As shown by the above table, the work of the office has doubled in the past 10 years, but notwithstanding the increase of the work the records have been kept up to date, and I wish to extend my thanks for the cordial manner in which they have assisted in all the duties assigned me.

Very respectfully,

H. M. WOODWARD,
Permit Clerk, District of Columbia.

Capt. E. M. MARKHAM,
Corps of Engineers, U. S. Army,
Assistant to Engineer Commissioner, District of Columbia.

REPORT OF THE AUTOMOBILE BOARD.

WASHINGTON, August 31, 1911.

SIR: I have the honor to submit the following report of the automobile board of the District of Columbia for the fiscal year ended June 30, 1911.

There were examined at the meetings of the board on the first and third Fridays of each month, beginning at 7 o'clock p. m., and by the secretary and members at other times during the year, 2,260 persons desiring permits to operate motor vehicles, as required by the regulations. Of those examined, 2,246 were recommended for permits, viz, 236 for electric type, 1,663 for gasoline type, 62 for steam type, and 285 for motor-cycle type; 14 not being satisfactory to the board were not recommended. There were also issued 225 duplicate permits, affidavits being filed that the originals had been lost or destroyed.

There were paid for during the year 2,230 permits, the revenue therefrom amounting to \$4,460.

There were paid for during the year 2,657 "enamel metal identification number tags," the revenue therefrom amounting to \$5,314.

Tags to the number of 24 were issued without fee to the United States and District of Columbia Governments.

There were 110 duplicate tags procured from the contractor at actual cost to the owners.

Two permits were revoked because of charges during the year.

The number of persons examined, type of motor to be operated, the number and kind of motor vehicles to which "enamel metal identification number tags" were assigned and furnished, and all work during the year, are shown in the following table:

	Type of motor vehicle to be operated and fees paid.							Identification number tags issued and fees paid.						
	Electric.	Gasoline.	Steam.	Motor cycle.	Not competent.	Revoked.	Fees paid for permits.	Electric.	Gasoline.	Steam.	Motor cycle.	United States and District of Columbia.	Duplicates.	Fees paid for number tags.
1910.														
July	10	144	17	113	1	.....	\$416	5	200	9	45	2	8	\$518
August	12	107	5	30	.....	.....	276	17	117	1	47	2	13	364
September	21	112	2	20	.....	.....	276	10	101	3	36	.....	1	300
October	29	138	7	30	1	.....	346	12	170	4	38	5	14	448
November	26	128	2	14	3	.....	312	19	118	2	26	5	5	330
December	19	96	6	5	2	1	238	16	85	2	9	.....	4	224
1911.														
January	15	101	1	12	.....	.....	256	13	88	.....	22	2	12	246
February	13	107	.....	21	2	1	246	8	82	.....	30	1	5	240
March	17	166	4	35	.....	.....	458	10	210	2	54	2	14	552
April	25	151	5	33	5	.....	410	18	202	6	61	.....	4	574
May	27	202	7	37	.....	.....	542	17	257	9	70	4	17	706
June	22	211	6	35	.....	.....	684	14	317	10	48	2	13	812
Total	236	1,663	62	285	14	2	4,460	159	1,947	48	503	25	110	5,314

Very respectfully,

H. M. WOODWARD,
Secretary Automobile Board, District of Columbia.

Approved:

E. F. VERMILLION,

Chairman Automobile Board, District of Columbia.

Capt. E. M. MARKHAM,

Corps of Engineers, U. S. Army,

Assistant to Engineer Commissioner, District of Columbia.

REPORT OF THE ELECTRICAL ENGINEER.

SIR: I have the honor to submit herewith the annual report of the electrical department for the fiscal year ended June 30, 1911.

NEW RATES FOR STREET LIGHTING.

Many important changes were made in the street-lighting system during the year, the principal one being the substantial reduction in prices secured by agreement with the contracting companies after a careful analysis of the costs of the various kinds of lighting. These reduced rates were presented to Congress and by them included in the appropriation act for the fiscal year 1912. In the case of the electric arc and incandescent lamps the rates were made effective from the date of the passage of the act, namely, March 2, 1911. In the case of the gas lamps east of Rock Creek, supplied with gas by the Washington Gaslight Co., a reduction of 58 cents per lamp per annum was made, to begin on January 1, 1911, and remain in force until the expiration of the present contract for such lamps, namely, June 30, 1912, after which date the lower rate adopted by Congress shall apply. In the case of the gas lamps west of Rock Creek, supplied with gas by the Georgetown Gaslight Co., a similar reduction was secured, but not made effective until August 1, 1911.

Concurrent with the adoption of these new rates, legislation was enacted by Congress combining the two appropriations for street lighting into one, embracing all forms of such lighting and giving to the commissioners authority to adopt new kinds of lighting at rates advantageous to the District. At the same time the hours of lighting the gas and naphtha lamps were increased, to be effective after the expiration of the existing contracts for such service—that is, on June 30, 1912.

The new rates for lighting, with the conditions and limitations imposed by the act of Congress, are as follows:

"SEC. 7. During the remainder of the current fiscal year and during the fiscal year nineteen hundred and twelve no more than the following rates shall be paid for lighting avenues, streets, roads, alleys, and public spaces, except as to the rate for mantle gas lamps, which rate herein specified shall apply only after the expiration of the existing contract for mantle gas lighting, but not for a longer period than until the end of the fiscal year nineteen hundred and twelve unless hereafter otherwise provided:

"For mantle gas lamps of sixty candlepower, eighteen dollars and forty cents per lamp per annum.

"For street designation lamps, using flat-flame burners, consuming not more than two and one-half cubic feet of gas per hour, or eight-candlepower incandescent electric lamps, with posts and lanterns furnished by the District of Columbia, ten dollars per lamp per annum.

"For forty candlepower, fifty watt, incandescent electric lamps on overhead wires, fifteen dollars per lamp per annum.

"For forty candlepower, fifty watt, incandescent electric lamps on underground wires, nineteen dollars and fifty cents per lamp per annum.

"For sixty candlepower, seventy-five watt, incandescent electric lamps on overhead wires, seventeen dollars and fifty cents per lamp per annum.

"For sixty candlepower, seventy-five watt, incandescent electric lamps on underground wires, twenty-three dollars per lamp per annum.

"For eighty candlepower, one hundred watt, incandescent electric lamps on underground wires, twenty-six dollars per lamp per annum.

"For one hundred candlepower, one hundred and twenty-five watt, incandescent electric lamps on underground wires, twenty-seven dollars and fifty cents per lamp per annum.

"For one hundred and fifty candlepower, one hundred and eighty-seven watt, incandescent electric lamps on underground wires, thirty-six dollars and fifty cents per lamp per annum.

"For two hundred candlepower, two hundred and fifty watt, incandescent electric lamps on underground wires, forty-six dollars and fifty cents per lamp per annum.

"For four-glower Nernst lamps on underground wires, fifty-two dollars and fifty cents per lamp per annum.

"For six and six-tenths ampere, five hundred and twenty-eight watt, direct-current, series-inclosed arc lamps, eighty dollars per lamp per annum.

"For five-ampere, five hundred and fifty watt, direct-current, multiple-inclosed arc lamps, eighty dollars per lamp per annum.

"For four-ampere, three-hundred-and-twenty-watt magnetite, or other arc lamps of equal illuminating value acceptable to the Commissioners of the District of Columbia, on overhead wires, fifty-nine dollars per lamp per annum.

"For four-ampere, three-hundred-and-twenty-watt magnetite, or other arc lamps of equal illuminating value acceptable to the Commissioners of the District of Columbia, on underground wires, seventy-two dollars and fifty cents per lamp per annum.

"For six and six-tenths ampere, five-hundred-watt magnetite, or other arc lamps of equal illuminating value acceptable to the Commissioners of the District of Columbia, on overhead wires, eighty-four dollars per lamp per annum.

"For six and six-tenths ampere, five-hundred-watt magnetite, or other arc lamps of equal illuminating value acceptable to the Commissioners of the District of Columbia, on underground wires, ninety-seven dollars and fifty cents per lamp per annum.

"For flame arc lamps, five hundred watt, General Electric type, or other arc lamps of equal illuminating value acceptable to the Commissioners of the District of Columbia, one hundred and fifty dollars per lamp per annum.

"*Provided*, That except as otherwise directed by the Commissioners of the District of Columbia, all series-inclosed and multiple-inclosed arc lamps now in service shall be replaced by the lighting company, without expense to the District of Columbia, with four-ampere, three-hundred-and-twenty-watt magnetite, or other arc lamps of equal illuminating value acceptable to the Commissioners of the District of Columbia, by April first, nineteen hundred and fourteen, and such replacement shall be effected to the number of not less than four hundred lamps per annum until completed.

"For the rates named above it shall be the duty of each gaslight company and each electric-light company doing business in the District of Columbia to erect and maintain such street lamps as the Commissioners of said District may direct; and each such company shall furnish, install, and maintain all posts, lamps, lanterns, burners, wires, cable, conduits, gas pipes, street designations, and fixtures necessary for the respective lamps maintained by each of them, including lighting and extinguishing lamps, and repairing, painting, and cleaning.

"The cost of each lamp-post (exclusive of erection), including the lantern, globe, and street designations, furnished by any lighting company under the above rates shall not exceed fifteen dollars for each gas or electric incandescent lamp nor fifty dollars for each electric arc lamp, except as hereinafter provided, and each post and its equipment shall be of a design and quality acceptable to the Commissioners of the District of Columbia. For each such lamp-post furnished by a lighting company by direction of the District Commissioners which shall cost in excess of fifteen dollars for gas or electric incandescent lamps, or which shall cost in excess of fifty dollars for electric arc lamps, the company furnishing the same shall receive, in addition to the above rates, eleven per centum per annum on such additional or excess cost.

"The Commissioners of the District of Columbia are authorized in their discretion to purchase or construct from street-lighting appropriations made in this act, posts, lanterns, street designations, and all necessary fixtures or appurtenances for any of the systems of lighting above named: *Provided*, That whenever the said commissioners shall furnish the said equipment, one dollar and sixty-five cents per lamp per annum for gas or electric incandescent lamps and four dollars and forty cents per lamp per annum for electric arc lamps shall be deducted from the rates above fixed.

"The Commissioners of the District of Columbia are further authorized, in their discretion, to adopt other forms of electric street lighting than those named, in which event payments under appropriations made in this Act, shall be made for the lighting service rendered at not to exceed three cents per kilowatt hour for current consumed, and, in addition thereto, eleven per centum per annum of the cost to the lighting company of furnishing and installing lamps, posts, street designations, fixtures, and the cable from lamps to the nearest point of current supply, and a fair sum for the cost of maintenance.

"When ordered to do so by the said commissioners, lighting companies shall move and readjust any lamps maintained by them at the following rates:

"For each electric arc lamp, ten dollars.

"For each electric incandescent lamp, five dollars.

"For each gas lamp moved not more than six feet, two dollars and fifty cents.

"For each gas lamp moved more than six feet, four dollars.

"For each gas lamp raised or lowered to new grade, one dollar and fifty cents.

"The Commissioners of the District of Columbia are authorized to enter into contract, for the fiscal year nineteen hundred and twelve, with any responsible person, firm, company, or corporation for the maintenance of naphtha or oil lamps, equipped with mantle burners of not less than sixty candlepower, at a price not to exceed twenty-two dollars and eighty cents per lamp per annum, which price shall include the entire cost of furnishing, installing, and maintaining all necessary posts, lanterns, burners, street designations, and fixtures.

"**SEC. 8.** Hereafter each and every public gas, naphtha, or oil lamp in the District of Columbia shall burn each night from twenty minutes after sunset until forty min-

utes before sunrise, and each and every electric lamp shall burn from fifteen minutes after sunset until forty-five minutes before sunrise, in accordance with schedules to be prepared by the Commissioners of the District of Columbia.

"Hereafter no public electric lamp shall be maintained by means of overhead wires within either the city limits of Washington or the existing fire limits of the District of Columbia.

"Hereafter proportionate deductions shall be made from the amounts due lighting companies for failure to furnish the illumination required by law for public lighting in the District of Columbia, and each company shall furnish, at its own expense, when and as required by the Commissioners of the District of Columbia, all proper and necessary facilities, testing places, and apparatus at its plant, and such help at points on its mains or circuits as to enable the said commissioners to determine whether the required illumination is being furnished. For each and every lamp which shall be extinguished or not lighted during any portion of the schedule time of lighting, a pro rata deduction, based upon the period of nonillumination and the price per lamp, shall be made from said amounts.

"Hereafter the Commissioners of the District of Columbia shall not be required to execute contracts for gas and electric lighting.

"Hereafter any gaslight company or any electric-light company doing business in the District of Columbia, which shall fail or refuse to furnish, erect, maintain, move, or discontinue any street lamp in compliance with the foregoing provisions as the Commissioners of the District of Columbia may direct, shall be subject to a penalty of twenty-five dollars for each and every day's failure or refusal so to do, to be recovered at law in the name of the District of Columbia in any court of competent jurisdiction.

"When ordered by the commissioners to do so, lighting companies in the District of Columbia shall discontinue any public lamps maintained by them without further payment therefor, and shall remove from the streets, at their own expense, all posts, lanterns, and fixtures connected therewith."

(Extract from an act of Congress making appropriations for the support of the government of the District of Columbia for the fiscal year ending June 30, 1912, and for other purposes, approved March 2, 1911.)

CANDLEPOWER OF ARC LAMPS.

The question having been raised that the direct-current series and multiple inclosed arc lamps did not comply with the requirement of the law that "each lamp shall be of not less than 1,000 actual candlepower," the matter was brought to the attention of Congress, who directed that the commissioners should effect a settlement with the Potomac Electric Power Co. for this service. The conferences with the company resulted in the adoption of the following agreement:

"That for each arc light furnished, lighted, and maintained from the date of the contract (October 30, 1909,) until March 2, 1911, the rate shall be \$80 per annum; and a settlement on this basis is hereby made for the period between the date of the contract and March 2, 1911, to be concluded on the date of the expiration of the first regular session of the Sixty-second Congress; *Provided*, That Congress does not by legislation prior to the adjournment of said session provide for other terms of settlement.

"And the parties of the first part (the commissioners) agree to pay to the party of the second part (the Potomac Electric Power Co.) immediately for the period above stated for services rendered at the rate of \$80 per lamp per annum furnished, lighted, and maintained, said payment to take into consideration the payments previously made under the contract, and the party of the second part agrees in consideration of the above payment that should Congress (before the close of its next regular session) so order, they, the party of the second part, will return to the Commissioners of the District of Columbia such proportion of the sum total received hereunder as may be legislatively directed, and the party of the second part further agrees that such sum may be deducted from any payments due or to become due said Potomac Electric Power Co."

Under this agreement a settlement was reached with the company on August 19, 1911. The sum of \$7,348.03 was deducted from moneys due the company which had been withheld, representing the difference between the \$85 rate for arc lights provided in the contract and the \$80 rate arrived at under the agreement. This deduction was for the period from October 30, 1909 (the date of the contract), to October 31, 1910, inclusive (the date of the last payment to the company). It took into account the deductions provided for in the contract for outages, that is, the period during

which the full number of hours service of the lamps was not given by the contractor. The adjustment of these outages was necessary, as the original deductions were based on the \$85 rate.

For the period from October 31, 1910, to March 2, 1911 (the date of the approval of the District appropriation act for the fiscal year 1912), the company was paid at the rate of \$80 per lamp per annum, as per agreement.

The total deduction made under the contract at the rate of \$80 per lamp per annum from the date of the contract, October 30, 1909, to the passage of the act above referred to, March 2, 1911, and the saving to the District of Columbia through the terms of the settlement was as follows:

By paying \$80 instead of \$85 per lamp per annum for the period from Oct. 30, 1909 (the date of the contract), to Oct. 31, 1910.....	\$7, 348. 03
Saving by the difference between \$85 and \$80 for the period from Nov. 1, 1910, to Mar. 2, 1911.....	2, 421. 37
Total saving for the entire period embraced in the settlement.....	9, 769. 40

IMPROVED INCANDESCENT ELECTRIC LIGHTING.

After many experiments had been made with incandescent electric lamps, equipped with various shades, reflectors, and globes, to ascertain the kind best adapted to the tree-lined streets of this city, an initial installation was made on Sixteenth Street from H Street to the newly completed concrete bridge over Piney Branch, a distance of approximately $2\frac{1}{2}$ miles. From H to U Streets (a distance of 1 mile) 100-watt 80-candlepower series tungsten lamps are used; from U Street to Piney Branch Bridge the lamps are 50-watt 40-candlepower series tungsten. In both cases the lamp-posts are "staggered" on the two sides of the street, and average 60 feet apart, measured along the axis of the street. There is but one lamp to each post, placed in a pendant position inside a 15-inch rough inside globe. On the street corners blown-glass signs, with red letters on a white ground, are set in an open frame in such a position that the downward light from the diffusing globe illuminates them at nighttime. This form of lighting is very effective for the important residence streets.

LIGHTS ON COUNTY ROADS.

A considerable saving in the appropriation for street lighting was effected by the discontinuance of a number of lamps on those county roads where the extent of improvements and the amount of travel at night were not considered sufficient to justify their retention at this time. Two hundred and twenty-five incandescent electric lamps, 145 naphtha lamps, and 65 gas lamps were discontinued, effecting an annual saving of \$9,158 at the rates then prevailing.

LIGHTS ALONG STEAM RAILROADS.

As stated in previous annual reports, the Washington Terminal Co. and the Philadelphia, Baltimore & Washington Railroad have refused to pay for the lighting of the lamps along their rights of way, as required by law. In the case of the former company suit was entered to recover the amount due up to and including September 1, 1909, under the act of 1882 (22 Stats., 466) and the act of 1908 (13 Stats., 287).

The Supreme Court of the District of Columbia held that the former act did not apply to this company, but that the commissioners could recover under the terms of the act of 1908. Both the Terminal Co. and the commissioners appealed to the court of appeals, where the decision of the lower court was upheld and judgment entered against the Terminal Co. for \$1,042.04 under the act of 1908. This judgment remains unpaid, as counsel for the defendant company is trying to obtain a trial by jury. In addition to the amount of this judgment, there is due from the Washington Terminal Co. \$8,430.48 for the period from September 1, 1909, to June 30, 1911.

In the case of the Philadelphia, Baltimore & Washington Railroad Co., the suit brought by the District of Columbia to recover \$8,375.40 due up to and including December 31, 1910, was decided against the district in the Supreme Court of the District and is now pending before the court of appeals.

After remaining idle for many years, the tracks of the Georgetown Barge, Dock, Elevator & Railway Co., on Water Street and Thirtieth Street, in Georgetown, have recently been put in service in connection with the newly constructed branch of the Baltimore & Ohio Railroad entering the District near the Chain Bridge. While only freight cars are run at present over these tracks, the cars are frequently parked at night in the street. Although bills for the maintenance of the street lamps along

these tracks have been sent to the company, in accordance with the act of 1882, the company has failed to pay them and suit is now being entered by the corporation counsel to recover the amount due.

FIRE-ALARM AND POLICE-PATROL LAMP-POSTS.

A new and original design for posts to be used in connection with the fire-alarm and police-patrol boxes was adopted and a complete set of aluminum patterns secured, from which posts will be cast as required. Instead of the expensive lantern top heretofore used on the stock posts purchased in New York, red globes are used for the fire-alarm posts and green globes for the police-patrol posts, the latter having a signal lamp, controlled in the precinct station, for calling the patrolmen at night.

STREET LAMP RECORD.

The set of 50-foot scale maps, on which are platted the exact location of each street lamp within the built-up area of the District, was completed early in the year and a tabulation made therefrom of the various kinds of lamps, lamp equipments, etc. The number of lamps on this record was computed and compared with a careful count made by a field party composed of representatives of this department and of the light-ing companies.

The following tables show the number of the various street lamps erected, discontinued, etc., during the year:

Distribution of new lamps established during the fiscal year 1911.

Kind of light.	North-west.		North-east.		South-west.		South-east.		North-west, county.		North-east, county.		South-east, county.		Total.
	Streets.	Alleys.	Streets.	Alleys.	Streets.	Alleys.	Streets.	Alleys.	Streets, etc.	Alleys.	Streets, etc.	Alleys.	Streets, etc.	Alleys.	
Mantle gas.....	71	115	53	1	6	9	15	11	113	33	41	1	8	.....	1 477
Naphtha.....											13		2	.....	15
Electric incandescent:															
40-candlepower.....	46	6	199				15		763		309		597	.....	1,935
80-candlepower.....	122								12					.....	134
100-candlepower.....	16				5									.....	21
Electric arc:															
4-ampere magnetite.....	4		2											.....	6
6.6-ampere magnetite.....	8													.....	8
6.6-ampere series inclosed.....									5					.....	5
5-ampere multiple inclosed.....	28													.....	28
Street - designation lamps:															
On fire - alarm posts—															
Gas.....	1		1						2		2			.....	6
On plain posts—															
Gas.....	1								1					.....	2
Electric incandescent.....	1													.....	1
Total.....	298	121	255	1	11	9	30	11	896	33	365	1	507	.....	2,638

¹ Of this number, 11 lamps in alleys and 60 lamps in streets were changed from naphtha to gas.

² Of this number, 1,465 25-candlepower incandescent electric lamps, 220 mantle gas lamps, 70 naphtha lamps, and 16 flat-flame gas lamps were changed to 40-candlepower incandescent electric.

³ These lamps were changed from multiple inclosed.

⁴ These lamps were changed from magnetite.

⁵ These lamps were changed from series inclosed.

The changes have been as follows:

Kind of light.	Added.	Discontinued.
Mantle gas	477	327
Flat-flame gas		16
Naphtha	15	298
Electric incandescent:		
25-candlepower		1,465
40-candlepower	1,935	232
80-candlepower	134	16
100-candlepower	21	4
Electric arc:		
4-ampere magnetite	6	5
6.6-ampere series inclosed	5	29
6.6-ampere magnetite	8	
5-ampere multiple inclosed	28	15
Street-designation lamps:		
On fire-alarm posts—		
Gas	6	8
On patrol posts—		
Gas		4
On plain posts—		
Gas	2	3
Electric incandescent	1	
Total	2,638	2,422

Net increase during the year, 216 lamps.

Summary of changes.

Net increase in number of lamps	216
Number discontinued	539
Number replaced by other kinds	1,883
Total changes	2,638

Lamps of all kinds in service July 1, 1911, as compared with July 1, 1910.

Kind of light.	1910	1911
Mantle gas	9,090	9,240
Flat-flame gas	16	
Naphtha	1,224	941
Electric incandescent:		
25-candlepower	1,465	
40-candlepower	726	2,429
80-candlepower	105	223
100-candlepower	4	21
200-candlepower	2	2
4-glower Nernst	60	60
Electric arc:		
4-ampere magnetite	269	270
6.6-ampere magnetite		8
6.6-ampere series inclosed	676	652
5-ampere multiple inclosed	524	537
Street-designation lamps:		
Gas	499	492
Electric	29	30
Total	14,689	14,905

Increase during year, 216 lamps.

DISTRICT UNDERGROUND CONDUIT AND CABLE SYSTEM.

The following conduit connections were made to the underground system:

Fire-alarm posts (total, 26).

Fourth and C Streets NE. ¹	Connecticut and Cathedral Avenues NW.
Thirteenth and B Streets NE. ¹	Connecticut Avenue and Oliver Street NW.
Franklin and North Capitol Streets NE. ²	Fifth and L Streets NE. ¹
First and Bryant Streets NW. ²	Tenth and K Streets NE. ¹
Park Road and Warder Street NW.	Georgia Avenue and Lamont Street NW. ¹
Seventh and D Streets SW. ¹	Sixth and M Streets NE. ¹
Four-and-a-half and H Streets SW. ¹	Fourteenth and Webster Streets NW. ¹
Sixth and G Streets SW. ¹	Connecticut Avenue and Morrison Street NW. ¹
Third and M Streets SW. ¹	Ontario Road and Euclid Street NW. ¹
O Street between Four-and-a-half and Union Streets SW. ¹	Sixth and D Streets NE.
Twelfth Street and New York Avenue NW. ¹	Third and F Streets NE.
Fifth and H Streets NW. ¹	Eleventh and Euclid Streets NW. ¹
First and Pierce Streets NW. ¹	Sixth and M Streets SW. ¹

Patrol posts (total, 29).

Fourth and C Streets NE. ¹	Fourteenth and Belmont Streets NW. ¹
Thirteenth and B Streets NE. ¹	Ontario Road and Eighteenth Street NW. ¹
Thirty-fourth and Macomb Streets NW. ²	Twenty-second and Q Streets NW. ¹
Park Road and Warder Street NW.	N Street between Connecticut Avenue and Nineteenth Street NW. ¹
Tenth Street and Louisiana Avenue NW.	Twenty-seventh Street and Virginia Avenue NW. ¹
Nineteenth Street and Park Road NW. ¹	Thirty-seventh Street and Wisconsin Avenue NW.
First Street and Maryland Avenue SW. ¹	Massachusetts Avenue west of Scott Circle NW. ¹
Second and D Streets SW. ¹	Eleventh and Euclid Streets NW. ¹
Third and M Streets SW. ¹	First and B Streets SE. ¹
H Street east of Seventh Street SW. ¹	New Hampshire Avenue and N Streets NW. ¹
Eighth and I Streets NW. ¹	Eleventh and Otis Streets NW. ¹
Eleventh and G Streets NW. ¹	
First and Pierce Streets NW. ¹	
Twenty-sixth and M Streets NW.	
Tenth and I Streets NW. ¹	
Connecticut Avenue and Oliver Street NW.	
Fifth and K Streets NE. ¹	
Georgia Avenue and Emerson Street NW. ¹	

Connections between conduits (total, 17).

Thirteenth and B Streets NE. ¹	First and Pierce Streets NW. ¹
C Street between Fourteenth Street and Linworth Place SW. ²	First and M Streets NW. ¹
T Street between Sixth and Seventh Streets NW. ²	McKinley Street east of Connecticut Avenue NW.
Dent Place between Thirty-fourth and Thirty-fifth Streets NW.	Fifth Street from K to L Streets NE. ¹
Seventh Street from C to D Streets SW. ¹	Seventh Street, Massachusetts Avenue and B Street NE. ¹
Second Street between Canal Street and Maryland Avenue SW. ¹	Western Avenue east of Chevy Chase Circle NW.
Second and D Streets SW. ¹	Euclid Street between Eleventh and Twelfth Streets NW. ¹
M Street between Third and Four-and-a-half Streets SW. ¹	M Street between Four-and-a-half and Sixth Streets SW. ¹
Fifth and H Streets NW. ¹	

¹ Built by Chesapeake & Potomac Telephone Co. under contract.

² Built by H. M. Schreiner under contract.

Connections to buildings (total, 18).

No. 23 Engine House, G Street between Twenty-first and Twenty-second Streets NW. ²	Douglas School, First and Pierce Streets NW. ¹
No. 2 Engine House, Twelfth Street between G and H Streets NW. ²	Gage School, Second Street between U and V Streets NW. ¹
Potomac School, Tenth and E Streets SW. ²	Ludlow School, Sixth and G Streets NE. ¹
Maury School, B Street between Twelfth and Thirteenth Streets NE. ¹	Hayes School, Fifth Street between K and L Streets NE. ¹
Bradley School, Thirteen-and-a-half Street between C and D Streets SW. ²	Tyler School, Eleventh Street between G and H Streets SE.
Hilton School, Sixth Street between B and C Streets NE.	Government Printing Office (old building), North Capitol and H Streets NW. ¹
Threlkeld School, Thirty-sixth and Prospect Streets NW.	Government Printing Office stables, L Street between North Capitol and First Streets NE.
John Eaton School, Thirty-fourth and Lowell Streets NW. ²	Howard Theater, T Street between Sixth and Seventh Streets NW. ²
Western High School, Thirty-fifth Streets between Reservoir and R Streets NW.	No. 6 Police Station House, New Jersey Avenue between D and E Streets NW. ¹

In making the above-mentioned connections, 11,071.5 feet of conduit (duct feet) and 19 manholes were built, the work being done by this department, except where noted otherwise.

Connections to the underground system.

	On July 1, 1911.		On July 1, 1911.
Fire-alarm posts.....	324	Miscellaneous District buildings.....	6
Police patrol posts.....	241	United States Government buildings.....	16
Cable terminal posts.....	7	Private buildings.....	38
School houses.....	44	Cable poles.....	93
Fire department houses.....	26		
Police station houses.....	12	Total.....	807

Cable installed during the year.

Size of cable.	Signal.		Telephone.		Combination.						Total.		
	Cable.	Conductors, No. 14, B. & S.	Cable.	Conductors, No. 19, B. & S.	Cable.	Conductors, No. 14, B. & S.		Conductors, No. 19, B. & S.		Cable.	Conductors No. 14, B. & S.	Conductors, No. 19, B. & S.	
						Pairs.	Condu c-tors.	Pairs.	Condu c-tors.				
Feet.	Feet.	Feet.	Feet.	Feet.	No.	Feet.	No.	Feet.	Feet.	Feet.			
55-pair					6,970	15	209,100	40	557,600	6,970	209,100	557,600	
15-pair					65	8	1,040	7	910	65	1,040	910	
8-pair					8,237	4	65,896	4	65,896	8,237	65,896	65,896	
5-pair					250	3	1,500	2	1,000	250	1,500	1,000	
3-pair					12,284	2	49,136	1	24,568	12,284	49,136	24,568	
Total					27,806		326,672		649,974	27,806	326,672	649,974	

5.26 miles of cable containing 184.97 miles of conductor.

¹ Built by Chesapeake & Potomac Telephone Co. under contract.

² Built by H. M. Schreiner under contract.

Cable withdrawn from service during the year.

Size of cable.	Signal.		Telephone.		Combination.				Total.			
	Cable.	Conductors, No. 14, B. & S.	Cable.	Conductors, No. 19, B. & S.	Cable.	Conductors, No. 14, B. & S.		Conductors, No. 19, B. & S.		Cable.	Conductors No. 14, B. & S.	Conductors, No. 19, B. & S.
						Pairs.	Condu c- tors.	Pairs.	Condu c- tors.			
Feet.	Feet.	Feet.	Feet.	Feet.	No.	Feet.	No.	Feet.	Feet.	Feet.		
15-pair.....					85	8	1,360	7	1,190	85	1,360	1,190
10-pair.....					491	5	4,910	5	4,910	491	4,910	4,910
8-pair.....					455	4	3,640	4	3,640	455	3,640	3,640
3-pair.....					1,400	2	5,600	1	2,800	1,400	5,600	2,800
Total.....					2,431	----	15,510	----	12,540	2,431	15,510	12,540

0.46 mile of cable containing 5.31 miles of conductor.

Total amount of cable in service June 30, 1911.

Size of cable.	Signal.		Telephones.		Combination.					Total.		
	Cable.	Conductors No. 14, B. & S.	Cable.	Conductors No. 19, B. & S.	Cable.	Conductors No. 14, B. & S.		Conductors No. 19, B. & S.		Cable.	Conductors No. 14, B. & S.	Conductors No. 19, B. & S.
						Pairs.	Conduc- tors.	Pairs.	Conduc- tors.			
Feet.	Feet.	Feet.	Feet.	Feet.	No.	Feet.	No.	Feet.	Feet.	Feet.		
100-pair			10,812	2,162,400					10,812			2,162,400
90 pair					480	30	28,800	60	57,600	480	28,800	57,600
80-pair					4,503	30	270,180	50	450,300	4,503	270,180	450,300
75-pair			4,275	641,250					4,275			641,250
70-pair					1,857	30	111,420	40	148,560	1,857	111,420	148,560
65-pair					2,785	15	83,550	50	278,500	2,785	83,550	278,500
60-pair					2,940	30	176,400	30	176,400	2,940	176,400	176,400
55-pair					11,401	15	342,030	40	912,080	11,401	342,030	912,080
50-pair	2,533	253,300	4,318	431,800					6,851	253,300	431,800	
45-pair					6,069	20	242,760	25	303,450	6,069	242,760	303,450
45-pair					19,054	15	571,620	30	1,143,240	19,054	571,620	1,143,240
40-pair					5,388	15	161,640	25	269,400	5,388	161,640	269,400
35-pair					22,344	15	670,320	20	893,760	22,344	670,320	893,760
33-pair					4,633	17	157,522	16	148,256	4,633	157,522	148,256
30-pair	13,019	781,140	3,036	182,160	574	15	17,220	15	17,220	16,629	798,360	199,380
30-pair					62,071	10	241,420	20	482,840	62,071	241,420	2,482,840
25-pair			12,330	616,500	1,043	10	20,860	15	31,290	13,373	20,860	647,790
20-pair			8,861	354,440	19,026	10	380,520	10	380,520	27,887	380,520	734,960
18-pair					5,494	8	87,904	10	109,880	5,494	87,904	109,880
15-pair	19,247	577,410	72	2,160	3,000	8	48,000	7	42,000	22,319	625,410	44,160
14-pair					6,424	6	77,088	8	102,784	6,424	77,088	102,784
12-pair	12,240	289,056			32,367	6	388,404	6	388,404	44,607	677,400	388,404
10-pair	570	11,400			25,317	5	253,170	5	253,170	25,887	264,570	253,170
8-pair					105,561	4	844,488	4	844,488	105,561	844,488	844,488
6-pair					5,676	4	45,408	2	22,704	5,676	45,408	22,704
5-pair					32,893	3	197,358	2	131,572	32,893	197,358	131,572
3-pair					105,450	2	421,800	1	210,900	105,450	421,800	210,900
Total	47,609	1,912,306	43,704	4,390,710	486,350	6,839,882	9,799,318	577,663	8,752,188	14,190,028		

109.40 miles of cable containing 4,345.11 miles of conductor.

Space occupied by cable installed during the year.

Owner of space.	Cable.
	<i>Feet.</i>
District of Columbia.....	7,408
Chesapeake & Potomac Telephone Co.....	18,739
Washington Railway & Electric Co. ¹	1,521
Miscellaneous.....	138
Total.....	27,806

¹ Under this name are included the conduits of all the companies controlled by this corporation.

Space from which cables were withdrawn from service.

Owner of space.	Cable.
	<i>Feet.</i>
District of Columbia.....	560
Chesapeake & Potomac Telephone Co.....	1,871
Total.....	2,431

Total space occupied by cables July 1, 1911.

Owner of space.	Cable.
	<i>Feet.</i>
District of Columbia.....	118,960
Chesapeake & Potomac Telephone Co.....	434,852
Washington Railway & Electric Co. ¹	13,649
United States Government.....	1,536
Western Union Telegraph Co.....	7,180
Washington Terminal Co.....	1,019
Submarine cable.....	150
Miscellaneous.....	317
Total.....	577,663

¹ Under this name are included the conduits of all the companies controlled by this corporation.

Aerial cable installed during the year.

Size of cable.	Combination.					Total.		
	Cable.	Conductors No. 14, B. & S.		Conductors No. 19, B. & S.		Cable.	Con- duc- tors No. 14, B. & S.	Con- duc- tors No. 19, B. & S.
		Pairs.	Con- duc- tors.	Pairs.	Con- duc- tors.			
12-pair.....	<i>Feet.</i> 5,000	<i>No.</i> 6	<i>Feet.</i> 60,000	<i>No.</i> 6	<i>Feet.</i> 60,000	<i>Feet.</i> 5,000	<i>Feet.</i> 60,000	<i>Feet.</i> 60,000
8-pair.....	852	4	6,816	4	6,816	852	6,816	6,816
Total.....	5,852	.....	66,816	.....	66,816	5,852	66,816	66,816

1.11 miles of cable containing 25.31 miles of conductor.

Total amount of aerial cable in service June 30, 1911.

Size of cable.	Telephone.		Combination.						Total.		
	Cable.	Con- duc- tors No. 19, B. & S.	Cable.	Conductors No. 14, B. & S.		Conductors No. 19, B. & S.		Cable.	Con- duc- tors No. 14, B. & S.	Con- duc- tors No. 19, B. & S.	
				Pairs.	Con- duc- tors.	Pairs.	Con- duc- tors.				
<i>Feet.</i>	<i>Feet.</i>	<i>Feet.</i>	<i>No.</i>	<i>Feet.</i>	<i>No.</i>	<i>Feet.</i>	<i>Feet.</i>	<i>Feet.</i>			
25-pair	1,599	79,950						1,599		79,950	
20-pair			1,152	10	23,040	10	23,040	1,152	23,040	23,040	
15-pair			8,625	6	103,500	9	155,250	8,625	103,500	155,250	
12-pair			9,558	6	114,696	6	114,696	9,558	114,696	114,696	
10-pair			890	5	8,900	5	8,900	890	8,900	8,900	
8-pair			852	4	6,816	4	6,816	852	6,816	6,816	
Total	1,599	79,950	21,077		256,952		308,702	22,676	256,952	388,652	

4.29 miles of cable containing 122.27 miles of conductor.

FIRE-ALARM SYSTEM.

Twenty-one new fire-alarm boxes were placed in service during the year, 16 public and 5 private, located as follows:

Public boxes.

- No. 457, Seventh and D Streets SW.
- No. 462, Sixth and I Streets SW.
- No. 656, Third and F Streets NE.
- No. 667, Sixth and M Streets NE.
- No. 668, Tenth and K Streets NE.
- No. 677, Fourteenth and Franklin Streets NE.
- No. 878, Fourteenth and Webster Streets NW.
- No. 881, Euclid Street and Ontario Road NW.
- No. 882, Georgia Avenue and Gresham Place NW.
- No. 883, Georgia Avenue and Lamont Street NW.
- No. 885, Seventh and Quincy Streets NW.
- No. 963, Twenty-third and Q Streets SE.
- No. 991, Quarles and Olive Streets NE.
- No. 1613, Sixth and D Streets NE.
- No. 1621, North Capitol and Franklin Streets NE.
- No. 1631, Seventeenth and Lawrence Streets NE.

Private boxes.

- No. 297, Howard Theater, No. 622 T Street NW.
 - No. 375, Quartermaster's stables, Nineteenth Street, between Virginia Avenue and B Street NW.
 - No. 561, Capitol Building, north wing.
 - No. 563, Capitol Building, south wing.
 - No. 1675, Corby's yeast plant, Langdon, D. C.
- During the year 8 fire-alarm boxes were changed from overhead to underground connection.

The fire-alarm system was also extended to the new engine house, No. 23, on G Street, between Twenty-first and Twenty-second Streets NW., and to the new quarters of No. 2 engine, on Twelfth Street, between G and H Streets NW.

Number of fire-alarm boxes in service.

	July 1, 1910.	July 1, 1911.
Connected by overhead wires:		
Public boxes.....	105	105
Private boxes.....	46	47
Connected by underground wires:		
Public boxes.....	297	313
Private boxes.....	52	56
Total.....	500	521

Each fire-alarm box was tested several times during the year, the contact points cleaned, and the mechanism thoroughly overhauled. This is done regularly once a month as far as possible. The total number of tests amounted to 3,182, being an average of 6.107 per box.

Number of alarms received and transmitted.

Regular box alarms.....	675
Alarms from telephone stations.....	11
Alarms from national automatic boxes.....	0
Local alarms.....	579
Second alarms.....	20
Third alarms.....	7
Fourth alarms.....	2
Fifth alarms.....	1
Sixth alarms.....	0
Special alarms.....	1
Total.....	1,296
False box alarms.....	71
False local alarms.....	23

Number of alarms received by the month.

Months.	Box.	Box (false).	Local.	Local (false).
1910.				
July.....	45	3	34	1
August.....	23		31	2
September.....	49	3	27	2
October.....	49	6	48	4
November.....	69	11	49	4
December.....	80	7	55	3
1911.				
January.....	72	8	55	
February.....	53	7	46	2
March.....	83	11	74	1
April.....	58	9	55	2
May.....	68	3	62	1
June.....	37	3	43	1
Total.....	686	71	579	23

Special alarm, August 28, 1910: No. 10 engine company and No. 7 truck company to box No. 983.

POLICE PATROL SYSTEM.

The following changes and new installations were made in the patrol system:

First precinct:

New installations, connected underground—

Box No. 18, northwest corner of Eighth and I Streets NW.

Box No. 28, northwest corner of Tenth and I Streets NW.

Box No. 36, southwest corner of Eleventh and G Streets NW.

Second precinct:

Changed from overhead to underground connection—
Box No. 12, First and Pierce Streets NW.

Third precinct:

New installations, connected underground—

Box No. 135, northeast corner of Twenty-seventh Street and Virginia Avenue NW.

Box No. 133, southeast corner of Twenty-sixth and M Streets NW.

Box No. 132, Twenty-second and Q Streets NW.

Box No. 122, N Street between Connecticut Avenue and Nineteenth Street NW.

Fourth precinct:

New installation, connected underground—

Box No. 54, First Street and Maryland Avenue SW.

New installation, connected overhead—

Box No. 124, Half and G Streets SW.

Changed from overhead to underground connections—

Box No. 13, Second and D Streets SW.

Box No. 16, Third and M Streets SW.

Box No. 45, H Street between Sixth and Seventh Streets SW.

Seventh precinct:

New installations, connected overhead—

Box No. 17, south end of Aqueduct Bridge.

Ninth precinct:

Changed from overhead to underground connection—

Box No. 22, Thirteenth and B Streets NE.

Tenth precinct:

New installation, connected overhead—

Box No. 133, Twelfth and Newton Streets NW.

New installations, connected underground—

Box No. 18, Georgia Avenue and Emerson Street NW.

Box No. 38, northwest corner of Fourteenth and Belmont Streets NW.

Box No. 28, Eighteenth Street and Ontario Road NW.

Changed from overhead to underground connection—

Box No. 46, Park Road and Warder Street NW.

Eleventh precinct:

New installations, connected overhead—

Box No. 25, Fourteenth and U Streets SE.

Box No. 27, Valley Place and High Street SE.

Box No. 51, Twenty-third and Q Streets SE.

Box No. 44, Eighth Street and Alabama Avenue SE.

Subprecinct, Tennallytown:

New installation, connected underground—

Box No. 15, Thirty-seventh Street and Wisconsin Avenue NW.

New installation, connected overhead—

Box No. 12, Canal Road south of New Cut Road NW.

Box No. 13, Conduit and Chain Bridge Roads NW.

On July 1, 1911, the distribution of boxes among the precincts was as follows:

	Wall boxes.		Booths.	Total.
	Under-ground.	Over-head.		
First.....	29	1	.....	30
Second.....	22	.....	.....	22
Third.....	32	8	.....	40
Fourth.....	19	13	.....	32
Fifth.....	16	11	.....	27
Sixth.....	24	.....	.....	24
Seventh.....	17	4	.....	21
Eighth.....	23	1	.....	24
Ninth.....	16	17	1	34
Tenth.....	29	11	2	42
Eleventh.....	.....	21	3	24
Subprecinct, Tennallytown.....	6	12	3	21
Total.....	233	99	9	341

TELEPHONE SYSTEM.

The following 39 telephones were added to the two switchboards of the department during the year:

- Office of the superintendent engineer department stables, room 312.
 - Office of municipal architect, room 104, extension.
 - Electrical department, room 502.
 - Office of Assistant Engineer Commissioner Markham, room 309, extension.
 - Office of the inspector of buildings, room 110, extension.
 - Street-cleaning department, room 323.
 - Office of superintendent of the bathing beach, Seventeenth and B Streets NW., extension.
 - Office of probation officers, police court, Sixth and D Streets NW.
 - U Street stables, U Street between Sixteenth and Seventeenth Streets NW.
 - Street-cleaning department stables, in alley between Thirteenth and Fourteenth, E and G Streets SE.
 - Leper camp, party line with District nursery at foot of E Street SE.
 - Morgue, extension, 1221 Sixth Street SW.
 - Office of Judge Charles S. Bundy, municipal court, 315 John Marshall Place NW.
 - Office of Judge Robert H. Terrell, municipal court, 315 John Marshall Place NW.
 - Office of Judge Thomas H. Callan, municipal court, 315 John Marshall Place NW.
 - Office of Judge Luke C. Strider, municipal court, 315 John Marshall Place NW.
 - Office of Judge George C. Aukam, municipal court, 315 John Marshall Place NW.
 - Residence of Clifford Lanham, assistant superintendent of trees and parking, 1247 G Street SE.
 - Residence of J. W. Beale, extension, superintendent of stables, 3132 P Street NW.
 - Berrett School, one main and one extension.
 - Dennison School, extension.
 - Eaton School.
 - Lincoln School, extension.
 - Curtis School, extension.
 - New Potomac School.
 - Industrial Home School, extension.
 - Armstrong School, extension.
 - Berrett School, office of child labor bureau, one main and one extension.
 - Sumner School, extension.
 - Mott School.
 - Residence of O. R. Moxley, chauffeur for chief engineer fire department, 320 E Street NE.
 - No. 23 engine company, G Street between Twenty-first and Twenty-second Streets NW.
 - Office of chief engineer fire department, No. 2 engine house, extension.
 - Office of battalion chief, No. 6 truck company, extension.
 - Office of captain of No. 9 truck company, extension.
 - Residence of Battalion Chief C. B. Proctor, 1221 G Street NE.
 - Residence of Fire Marshal Nicholson, 136 Rhode Island Avenue NW., extension.
- The following eight telephones on these switchboards were discontinued during the year:
- Office of engineer of highways, room 404, extension.
 - Residence of Walter C. Allen, electrical engineer, extension.
 - Residence of Daniel E. Garges, chief clerk, engineer department.
 - School, 1017 12th Street NW., one main and one extension.
 - Western High School, one main and one extension.
 - Office of chief engineer fire department, No. 2 engine house, extension.

FRANKLIN SCHOOL SWITCHBOARD.

The following two telephones were added to this switchboard during the year:

- Franklin School building, office of the director of music.
- Franklin School building, office of assistant superintendent in charge of colored schools, extension.

During the year one telephone on this switchboard (located in the office of the child labor bureau in the Franklin School building) was discontinued.

POLICE DEPARTMENT SWITCHBOARD.

The following three telephones were added to this switchboard during the year:
 Residence of Inspector Boardman, 1315 R Street NW., extension.
 Residence of Lieut. Dean, harbor master, 653 East Capitol Street.
 Residence of Capt. Hollinberger, 654 Massachusetts Avenue NE., extension.
 During the year one telephone on this switchboard (located in the residence of Maj. Sylvester, 1223 Euclid Street NW.) was discontinued.

WATER DEPARTMENT SWITCHBOARD.

The following two telephones were added to this switchboard during the year:
 Office Reno Reservoir, extension.
 Water department, room 212.
 During the year one telephone (located in the U Street stables) was discontinued.

NUMBER OF TELEPHONES CONNECTED TO THE DISTRICT SYSTEM ON JULY 1, 1911.

Offices in the District Building.....	126
Residences of officials.....	18
Outside offices and institutions.....	56
Public schools.....	173
Fire department.....	57
Police department, private branch exchange.....	63
Franklin School, private branch exchange.....	19
Water department, private branch exchange.....	31
Police patrol service.....	352
Total.....	895

There are 26 portable telephone test sets in service in the District, 8 of which were added during the year, as follows:

Chemical Engine Co. No. 1, Chemical Engine Co. No. 2, Chemical Engine Co. No. 3, Chemical Engine Co. No. 5, Engine Co. No. 15, Engine Co. No. 17, Engine Co. No. 20, Engine Co. No. 22.

STORAGE-BATTERY SYSTEM.

The number of cells of storage battery in service July 1, 1911, was as follows:

On fire-alarm circuits.....	1,862
On patrol circuits.....	226
On local circuits.....	86
Total.....	2,174

POLES.

Under the authority of the act of Congress approved June 30, 1902, regulating the use of telephone wires in the District of Columbia, the Chesapeake & Potomac Telephone Co. have reported the following amount of work done during the fiscal year:

Poles erected within the prescribed area:	
In alleys.....	40
In streets.....	1
	41
Poles erected outside the prescribed area:	
In alleys.....	259
In streets.....	70
	329
Total.....	370
Poles taken down within the prescribed area:	
In alleys.....	172
In streets.....	9
	181

Poles taken down outside the prescribed area:

In alleys.....	58	
In streets.....	103	
		161
Total.....		342
Total erected during the year.....		370
Total taken down during the year.....		342
Net increase.....		28

MISCELLANEOUS POLE WORK.

Poles erected, taken down, moved, etc.

	Poles erected.			Poles taken down.			Poles moved.		Poles replaced.		Poles reset.		In-crease.		De-crease.	
	Line.	Guy.	Anchor.	Line.	Guy.	Anchor.	Line.	Guy.	Line.	Guy.	Line.	Guy.	Line.	Guy.	Line.	Guy.
Chesapeake & Potomac Telephone Co.....	242	9	91	172	16	.....	89	5	51	3	7	.....	70	.....	.....	7
Potomac Electric Power Co.....	449	11	35	22	.....	.....	38	.....	54	.....	2	.....	427	11	.....	.....
Western Union Telegraph Co.....	1	.....	.....	22	.....	.....	1	.....	3	.....	.....	.....	.....	.....	21	.....
Postal Telegraph-Cable Co.....	.....	.....	.....	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	.....
District of Columbia.....	27	3	.....	27	1	.....	.....	.....	2	.....	.....	.....	.....	2	.....	.....
Total.....	719	23	126	244	17	.....	128	5	110	3	9	.....	497	13	22	7

List of poles of all kinds July 1, 1911.

	Line.	Guy.	Total.
District of Columbia.....	671	23	694
United States Government.....	297	1	298
Chesapeake & Potomac Telephone Co.....	5,449	660	6,109
Potomac Electric Power Co.....	4,086	80	4,166
Western Union Telegraph Co.....	1,065	1	1,066
Postal Telegraph-Cable Co.....	354	8	362
Brightwood Ry. Co.....	340	.....	340
Columbia Ry. Co.....	461	.....	461
Anacostia & Potomac Ry. Co.....	3	.....	3
City & Suburban Ry. Co.....	86	.....	86
Georgetown & Tenleytown Ry. Co.....	304	.....	304
Capital Ry. Co.....	208	.....	208
Washington & Baltimore Transit Co.....	22	.....	22
Maryland & Washington Ry. Co.....	158	.....	158
Capital Traction Co.....	201	.....	201
Washington & Glen Echo Ry. Co.....	8	.....	8
Steam railroads.....	573	.....	573
Washington & Great Falls R. R. Co.....	401	.....	401
Total.....	14,687	773	15,460

ELECTRIC-WIRING INSPECTION.

The following tables show the amount of work performed by this department in connection with the electrical-wiring inspection:

Permits issued by the inspector of buildings authorizing electrical wiring:

Buildings.....	1,387
Machinery.....	158
Signs.....	78
	<u>1,623</u>

Permits issued by the electrical department:

For inside electrical work.....	1, 681
For outside electrical work.....	109
Temporary permits.....	285
Without fee.....	4
Without fee.....	1, 446
Quarterly.....	37
Gas lamps outside.....	88
	<hr/>
	3, 650
	<hr/>

Certificates issued:

Final.....	2, 981
Without fee.....	201
Preliminary.....	5
	<hr/>
	3, 187
	<hr/>

Number of lamps and apparatus installed:

Incandescent.....	92, 614
Arc lamps.....	179
Miscellaneous.....	3, 366
Blank outlets.....	908
Motors.....	553
Total horsepower of motors.....	2, 007
Generators.....	9
Total kilowatt capacity of generators.....	349½
	<hr/>

Defective wiring installations repaired:

Reported by outsiders.....	1
Reported by inspectors.....	351
	<hr/>
	352
	<hr/>

Notices of defective wiring sent.....	1, 232
Requests for inspection.....	28
Miscellaneous.....	103
Inspections in connection with yearly license.....	211
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Fees paid to the collector of taxes:

For permits.....	2, 200
For certificates.....	2, 904
Miscellaneous.....	5
	<hr/>
	5, 109

Work of inspectors of electric wiring from July 1, 1910, to June 30, 1911.

Assistant electrical engineer:

Number of days in office.....	142½
Number of days on regular wiring inspection.....	152
Number of days on miscellaneous work.....	10
	<hr/>
	304½
	<hr/>

Number of hours on theater inspection during evenings, Sundays, and holidays.....	234
Number of inspections during office hours.....	1, 635
Number of inspections on nights, Sundays, etc.....	436
	<hr/>
	2, 071
	<hr/>

Number of inspections of theaters.....	644
Number of inspections of other wiring.....	1, 427
	<hr/>
	2, 071

Summary of inspection.

	Hours on inspection work on Sundays and nights.	Inspections in District department buildings.	Theater inspections.	Days on inspection duty.	Total inspections.	Average inspections per day.
Inspector No. 1.....	42	70	408	2744	4,293	15.63
Inspector No. 2.....	79	134	99	273	2,613	9.6
Inspector No. 3.....	85	49	111	280	3,179	11.64
Inspector No. 4.....	148½	85	348	269	4,477	16.6
Assistant electrical engineer.....	234	196	644	152	2,071	13.6
Total.....	588½	534	1,610	1,248½	16,633	67.07

MISCELLANEOUS WORK.

This department drew up plans and specifications for and supervised the construction of the electric wiring installations in the following municipal buildings and institutions:

Workhouse, Occoquan, Va.:

Wiring for electric lights, men's and women's quarters.

One 20-kilowatt, direct-connected generator and switchboard.

One 125-K. V. A., direct-connected generator and switchboard.

Three-phase transmission line from engine room to dock.

Street lamps and circuits.

Plans for telephone system.

Georgetown Market:

Modified lighting plans.

Wiring for fan motors.

Eastern Market: Wiring for lights.

Engine house No. 2: Special running-board lights.

Engine house No. 24: Wiring for lights and fire-alarm system.

Engine house, Randle Highlands: Wiring for lights and fire-alarm system.

Designs for standard ceiling fixtures for fire-engine houses.

Western High School:

Wiring plans for lights and clock and bell system.

Modified wiring plans for assembly hall and kitchen.

Designs and schedules for lighting fixtures.

Telephone conduit system.

Outside gong and signal system.

Water Department: Wiring for lodge and garage, Reno reservoir.

Washington Asylum: Pole line through grounds.

Street cleaning department: Wiring plans for stable, alley in square 367.

Thompson School No. 156:

Changes in meter connections.

Designs and schedule of lighting fixtures.

First Precinct Station: Electric light wiring plans.

Eastern High School: Electrical equipment in laboratories.

Central High School: Electrical equipment in laboratories.

Convenience station No. 3: Wiring plans.

Monroe School: Wiring plans.

The electrical construction of the Washington, Spa Spring & Greta Railroad was carefully supervised and many changes required before the work was satisfactorily completed.

This branch of the department is increasing in importance each year, and takes the greater portion of the time of both an electrical inspector and one of the two draftsmen.

Respectfully submitted.

WALTER C. ALLEN,
Electrical Engineer, District of Columbia.

Capt. E. M. MARKHAM,
Corps of Engineers, U. S. Army,
Assistant to the Engineer Commissioner, District of Columbia.

STATEMENT OF RECEIPTS AND EXPENDITURES

STREET LIGHTING.

Receipts.

Appropriations.....	\$288,000.00
Repayments by Baltimore & Ohio R. R.....	467.06
Repayments by Philadelphia, Baltimore & Washington R. R.....	¹ 3,079.64
Repayments by Washington Terminal Co.....	¹ 3,674.57
Repayments by Georgetown Barge, Dock, Elevator & R. R. Co.....	¹ 386.60
Repayments by C. D. Kenny.....	13.50
Repayments by Washington, Spa Spring & Greta R. R. Co.....	18.00
Total.....	295,639.37

Expenditures.

Mantle gas lighting:		
American Street Lighting Co.....	\$189,777.94	
Deductions for defective service.....	\$119.33	
Deductions by agreement.....	2,465.59	
	<u>2,584.92</u>	187,193.02
Mantle naphtha lighting:		
American Street Lighting Co.....	23,782.01	
Deductions for defective service.....	194.98	
	<u>23,587.03</u>	23,587.03
Flat-flame gas lighting:		
Washington Gas Light Co.....	243.50	
Deductions for defective service.....	.20	
	<u>243.30</u>	243.30
Incandescent electric lighting:		
Potomac Electric Power Co.....	52,369.29	
Deductions for defective service.....	136.62	
	<u>52,232.67</u>	52,232.67
Street-designation lighting:		
Potomac Electric Power Co.....	343.85	
Deductions for defective service.....	.55	
	<u>343.30</u>	343.30
Washington Gas Light Co.....	5,579.06	
Deductions for defective service.....	2.01	
	<u>5,577.05</u>	5,577.05
Georgetown Gas Light Co.....	268.43	
Deductions for defective service.....	1.33	
	<u>267.10</u>	267.10
Posts, lanterns, etc.....		14,822.77
Livery.....		1,080.00
Labor pay roll.....		1,042.51
Street signs, material, etc.....		984.80
Erecting and moving posts.....		295.50
Paints, oils, etc.....		129.94
Traveling expenses.....		129.64
Cartage.....		54.20
Repairs to bicycles.....		9.40
Car tickets.....		20.00
Rent of storeroom.....		240.00
Repairs to pavements.....		2.81
Office expenses.....		34.20
Blacksmith's shop expenses.....		100.50
		<u>288,389.74</u>

¹ Due but not paid.

ELECTRIC ARC LIGHTING.

Receipts.

Appropriation.....	\$125,000.00
Repayments by Washington Terminal Co.....	¹ 916.76
Repayments by Philadelphia, Baltimore & Washington R. R.....	¹ 583.40
Repayments (miscellaneous).....	31.00

126,531.16

Expenditures.

Arc lighting:			
Potomac Electric Power Co.....	\$118,953.50		
Deductions for defective service.....	\$428.84		
Deductions by agreement.....	7,348.03		
		7,776.87	
			111,176.72
Labor pay roll.....			382.00
Traveling expenses.....			64.62

111,623.54

GENERAL SUPPLIES.

Receipts.

Appropriation.....	13,000.00
Repayments.....	605.61

13,605.61

Expenditures.

Office expenses.....	1,456.49
Telephone rental and service.....	4,282.16
Instruments and apparatus.....	1,371.94
Labor pay roll.....	1,709.38
Blacksmith's shop pay roll.....	100.00
Property clerk's pay roll.....	8.00
Pay, driver of engineer commissioner's automobile.....	122.00
Pay of copyist, record office.....	76.00
Pay of blue printer.....	36.00
Livery.....	1,260.00
Stable expenses.....	852.21
Car tickets.....	165.00
Bicycles and repairs.....	102.00
Traveling expenses.....	16.45
Rent, storeroom, south end Georgetown market.....	262.50
Cable.....	543.00
Line supplies.....	320.24
Wire.....	303.32
Batteries and battery supplies.....	178.73
Tools and hardware.....	172.68
Conduit supplies.....	94.75
Conduit construction.....	17.16
Pole construction.....	23.20
Paints, oils, and glass.....	19.58
Repairs to pavements.....	25.25
Electric current and gas.....	14.52
Miscellaneous.....	17.55

13,549.91

¹ Due but not paid.

WIRES UNDERGROUND.

Receipts.

Appropriation.....	\$7,000.00
Repayments.....	171.38

7,171.38

Expenditures.

Cable.....	3,231.61
Building conduits.....	1,673.36
Underground supplies.....	305.27
Posts.....	458.00
Repairs to pavements.....	637.23
Pro rata charge for aluminum patterns for fire-alarm and patrol posts and frames.....	285.68
Cast-iron fire-alarm and patrol box shells.....	191.50
Aluminum patterns for above.....	150.00
Pay roll.....	27.13
Miscellaneous.....	53.98

7,013.76

EXTENSION OF POLICE-PATROL SYSTEM.

Receipts.

Appropriation.....	\$4,500.00
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Expenditures.

Cast-iron patrol-box shells.....	424.49
Posts.....	280.00
Pro rata charge for aluminum patterns for patrol posts and frames.....	224.75
Conduit construction.....	1,514.81
Repairs to pavements.....	363.31
Cable.....	748.00
Wire.....	389.69
Instruments and apparatus.....	284.10
Pole supplies.....	130.50
Conduit supplies.....	3.55
Pay roll.....	95.52
Tools and hardware.....	7.53
Cable reel.....	14.00

4,480.25

PURCHASE AND ERECTION OF FIRE-ALARM BOXES.

Receipts.

Appropriation.....	\$5,000.00
Repayment.....	89.91

5,089.91

Expenditures.

Fire-alarm boxes.....	3,125.00
Cast-iron fire-alarm-box shells.....	112.00
Pro rata charge for aluminum patterns for fire-alarm posts and frames....	231.07
Posts.....	424.00
Cable.....	320.00
Wire.....	331.62
Conduit construction.....	251.99
Pole supplies.....	58.60
Repairs to pavements.....	94.44
Miscellaneous.....	18.24

4,966.96

EXTENSION OF TELEPHONE SYSTEM, PUBLIC SCHOOLS.

Receipts.

Appropriation.....	\$1,000.00
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Expenditures.

Conduit construction.....	448.60
Conduit supplies.....	15.93
Instruments and apparatus.....	22.00
Cable.....	272.50
Labor pay roll.....	38.00
Repairs to pavements.....	61.70
	<hr/>
	858.73

RECORD DIVISION.

[Directly under the supervision of the Engineer Commissioner.]

CHIEF CLERK OF THE ENGINEER DEPARTMENT.....	DANIEL E. GARGES, DANIEL E. GARGES, Chief Clerk, Engineer Department.
WHARF COMMITTEE.....	T. J. C. BAILY, Jr., Engineer of Bridges. RUSSELL DEAN, Harbor Master. Capt. E. M. MARKHAM, Assistant to Engineer Commissioner.
BOARD FOR CONDEMNATION OF INSANITARY BUILDINGS.....	WILLIAM C. WOODWARD, Health Officer, District of Columbia. MORRIS HACKER, Inspector of Buildings.
ASSISTANT ENGINEER IN CHARGE OF ROCK CREEK PARK.....	L. R. GRABILL.
SUPERINTENDENTS OF DISTRICT BUILDING.....	Capt. E. M. MARKHAM, Capt. MARK BROOKE, Assistants to Engineer Commissioner

REPORT OF THE CHIEF CLERK OF THE ENGINEER DEPARTMENT.

WASHINGTON, D. C., September 18, 1911.

SIR: I have the honor to submit the following report of the operations of this office for the fiscal year ended June 30, 1911:

Communications received, briefed, recorded, and indexed.....	15, 619
Vouchers prepared.....	370
Letters sent.....	7, 500
Contracts drawn.....	322

The tables accompanying this report show—

1. The expenditures from general appropriations for forage, horses, wagons, carts, etc.
2. Schedule of proposals received during the year.
3. Statement of contracts entered into during the year.

Very respectfully,

DANIEL E. GARGES,
Chief Clerk, Engineer Department.

Maj. WILLIAM V. JUDSON,
Corps of Engineers, U. S. Army,
Engineer Commissioner, District of Columbia.

Statement of expenditures from general appropriations for forage, horses, wagons, carts, etc., fiscal year 1911.

Cleaning and repairing sewers and basins.....	\$4, 399. 55
Main and pipe sewers.....	695. 79
Suburban sewers.....	681. 00
Grade crossings.....	94. 82
Assessment and permit work.....	885. 98
Northwest schedule.....	80. 18
Southwest schedule.....	86. 70
Southeast schedule.....	86. 70
Northeast schedule.....	80. 00
Repairs to streets, avenues, and alleys.....	433. 50
Construction and repair of bridges.....	93. 40
Park commission.....	2, 956. 47
Repairs to schools.....	324. 78
Repairs to plumbing—schools.....	152. 96
Repairs to engine houses.....	75. 65
General expenses, water department.....	1, 660. 33
High service, water department.....	5, 478. 20
General supplies, electrical department.....	744. 48

Total.....	19, 010. 49
	277

SCHEDULE OF PROPOSALS RECEIVED DURING FISCAL YEAR 1910-11.

PROPOSALS FOR CONSTRUCTION OF MUNICIPAL BUILDINGS.

*Proposals for constructing chemical engine house No. 2, located at Pennsylvania Avenue
and Twenty-eighth Place S.E.*

[Opened Nov. 8, 1910.]

Bidders.	Building complete.	Alternate bid—		Time of completion
		A.	B.	
Geo. E. Wyne.....	\$28,700	\$800	\$400	8 months.
Skinker & Garrett.....	28,621	752	244	Do.
W. H. McCray.....	32,000	675	500	Do.
Burgess & Parsons.....	29,597	425	300	Do.
W. E. Mooney.....	29,875	667	369	Do.
Randolph L. Jennings & Co.....	30,969	790	300	Do.
H. J. Montgomery.....	29,650	675	200	7 months.
Thos. H. Melton.....	27,763	684	360	8 months
Boyle-Robertson.....	28,783	1,000	400	Do.
Hoge & Luebker Co. (Inc.).....	28,342	1,468	489	Do.

Proposals for constructing a third addition to the McKinley Manual Training School.

[Opened Nov. 21, 1910.]

Bidders.	Building complete.	Alternate bid—						Time of com- pletion.
		A.	B.	C.	D.	E.	F.	
Gormley & Poynton...	\$162,000	\$1,300	\$2,200	.....	\$2,400	\$1,400	\$250	8 months.
Thos. H. Melton.....	165,200	1,350	3,400	.....	2,500	1,400	500	Specified time.
Davis Construction Co. (Inc.).....	170,451	1,495	2,629	.....	2,732	1,540	.....	Do.
Boyle-Robertson Con- struction Co. (Inc.).....	167,483	1,500	.....	.....	2,500	1,400	.....	Do.
Hoge & Luebker Co. (Inc.).....	173,923	2,000	3,800	.....	2,484	1,400	.....	Do.
Upton-Smoot Construc- tion Co.....	166,000	1,350	.....	.....	2,500	1,400	240	Do.
Geo. E. Wyne.....	164,700	1,700	.....	.....	2,500	1,400	.....	Do.

*Proposals for constructing the Takoma branch of the Washington Public Library, southeast
corner of Fifth and Cedar Streets NW.*

[Opened Dec. 15, 1910.]

Bidders.	Work complete.	Time of comple- tion.
Thos. H. Melton.....	\$41,500	Time specified.
Upton-Smoot Construction Co.....	39,982	150 working days
Allan T. Howison.....	40,230	6 months.
Randolph L. Jennings & Co.....	43,987	Time specified.
Skinker & Garrett.....	42,973	Do.
Hoge & Luebker Co. (Inc.).....	41,742	Do.
Boyle-Robertson Construction Co.....	39,943	Do.
A. S. Baird.....	51,900	Do.
Davis Construction Co.....	38,872	6 months.
W. H. McCray.....	44,444	8 months.
Geo. E. Wyne.....	39,500	Do.
Burgess & Parsons.....	42,000	Do.
W. E. Mooney.....	48,735	9 months.

Proposals for constructing chemical engine house No. 2, Pennsylvania Avenue and Twenty-eighth Place SE.

[Opened Jan. 16, 1911.]

Bidders.	Price complete per modified specifications.	Time less than specified.
R. L. Jennings & Co.....	\$24,779	
Thos. H. Melton.....	25,765	
Boyle-Robertson Construction Co. (Inc.).....	23,923	7 months.
Allan T. Howison.....	22,600	Do.
Geo. E. Wyne.....	23,600	Do.
Hoge & Luebker Co. (Inc.).....	23,932	Do.
McKay & Morris.....	24,846	6 months.
Burgess & Parsons.....	23,500	
Skinker & Garrett.....	22,527	

Proposals for constructing garage and lodge for water department at Fort Reno, District of Columbia.

[Opened Jan. 18, 1911.]

Bidders.

Randolph L. Jennings & Co.....	\$8,633
Burgess & Parsons.....	8,740
Hoge & Luebker Co. (Inc.).....	8,922
Jos. H. Gibbons.....	9,497
Boyle-Robertson Construction Co. (Inc.).....	9,795
Allan J. Howison.....	¹ 9,200
W. H. McCray.....	² 10,800
Geo. E. Wyne.....	10,200
McKay & Morris.....	11,000
Skinker & Garrett.....	8,987

¹ Cellar floor omitted.² Does not agree to par. 24 of specifications.*Proposals for constructing a 12-room school building, No. 165, located on lots Nos. 27 to 50, inclusive, square No. 417, southeast corner of T and Eighth Streets NW., District of Columbia.*

[Opened Feb. 3, 1911.]

Bidders.	Price complete.	Time.	Deduct for alternate—		
			A.	B.	C.
Skinker & Garrett.....	\$97,793.00	Specified.....	\$440.00	\$550.00	\$520.00
R. T. Humphrey.....	102,000.00	8 months.....	1,200.00	1,200.00	800.00
Burgess & Parsons.....	96,925.00	do.....	1,600.00	1,500.00	450.00
Boyle-Robertson Construction Co. (Inc.).....	98,471.00	do.....	1,100.00	1,200.00	900.00
Davis Construction Co.....	98,750.00	Specified.....	924.00	1,030.00	687.00
E. G. Hefflin.....	97,585.00	do.....			965.00
W. H. McCray.....	102,000.00	do.....	2,000.00	2,000.00	700.00
W. E. Mooney.....	97,995.00	do.....	1,442.00	1,457.00	815.00
Hoge & Luebker Co.....	96,392.00	do.....	1,400.00	1,400.00	740.00
H. J. Montgomery.....	113,000.00	8 months.....	1,000.00	700.00	700.00
Geo. E. Wyne.....	92,500.00	Specified.....	700.00	300.00	700.00
Thomas H. Melton.....	195,550.00	7 months.....	1,700.00	1,700.00	520.00

Proposals for constructing a 12-room school building, etc.—Continued.

Bidders.	Deduct for alternate—				
	D.	E.	F.	G.	H.
Skinker & Garrett.....	\$290.00	{ 1 \$4.30 2 2.10 3 1.50 4 3.00	+ \$1,680.00	+ \$90.00	+ \$690.00
R. T. Humphrey.....	400.00	{ 1 5.00 2 3.00		100.00	
Burgess & Parsons.....	475.00	{ 1 5.00 2 3.00	+ 500.00	100.00	+ 1,000.00
Boyle-Robertson Construction Co. (Inc.).....	500.00	{ 1 4.00 2 2.00	+ 300.00	300.00	+ 600.00
Davis Construction Co.....	400.00	{ 1 4.00 2 2.00		125.00	
E. G. Heflin.....	330.00			140.00	
W. H. McCray.....	450.00	{ 1 5.00 2 3.00	+ 500.00	150.00	+ 750.00
W. E. Mooney.....	575.00	{ 1 5.00 2 3.00	+ 850.00	170.00	+ 690.00
Hoge & Luebker Co.....	220.00	{ 1 5.00 2 3.00	+ 1,100.00	320.00	+ 1,200.00
H. J. Montgomery.....	500.00		+ 2,500.00		275.00
Geo. E. Wyne.....	500.00	{ 1 4.00 2 2.00		150.00	
Thomas H. Melton.....	300.00	{ 1 3.75 2 2.75		160.00	

Proposals for constructing the Alexander Crummel School Building, No. 167, located on Gallaudet Street, opposite Central Avenue, Ivy City, D. C.

[Opened Feb. 16, 1911.]

Bidders.	Price complete.	Time.	Alternate—			
			A.	B.	C.	D.
Burgess & Parsons.....	\$53,700.00	7 months.....	— \$600.00	— \$1,300.00	+ \$200.00	— \$200.00
H. J. Montgomery.....	55,768.00	.....do.....	— 207.00	— 1,797.00	+ 273.00	— 296.00
Skinker & Garrett.....	51,472.00	.....do.....	— 720.00	— 1,966.00	+ 170.00	— 269.00
Hoge & Luebker Co.....	51,000.00	.....do.....	— 675.00	— 1,750.00	+ 170.00	— 275.00
W. E. Mooney.....	49,994.00	.....do.....	— 425.00			— 250.00
Allan T. Howison.....	51,000.00	6 months.....	— 515.00	— 2,550.00	+ 240.00	— 170.00
Thos. H. Melton.....	51,200.00	7 months.....	— 400.00	— 800.00	+ 200.00	— 160.00

Bidders.	Alternate—				
	E.	F.	G.	H.	I.
Burgess & Parsons.....	+ \$900.00	{ 1 \$3.60 2 1.75 3 1.75	— \$225.00	+ \$800.00	— \$1,200.00
H. J. Montgomery.....	+ 753.00	{ 1 3.60 2 1.75		+ 660.00	— 1,650.00
Skinker & Garrett.....	+ 796.00	{ 1 3.00 2 2.00		+ 738.00	+ 1,756.00
Hoge & Luebker Co.....	+ 640.00	{ 1 3.60 2 1.75	— 170.00	+ 690.00	+ 750.00
W. E. Mooney.....	+ 700.00	{ 1 3.60 2 2.75			
Allan T. Howison.....	+ 750.00	{ 1 5.00 2 3.00	— 110.00	+ 740.00	+ 150.00
Thos. H. Melton.....	+ 720.00	{ 1 4.00 2 3.00		+ 1,400.00	+ 1,700.00

Proposals for the construction of an 8-room school building, No. 163, to be located on Farragut Street, between Thirteenth and Fourteenth Streets NW.

[Opened Feb. 28, 1911.]

Bidders.	Price complete.	Alternate—							
		A.	B.	C.	D.	E.	F.	G.	H.
Boyle-Robertson Construction Co. (Inc.)	\$60,853.00	—\$250	—\$289	—\$300	.....	—\$25	—\$430	—\$320	.....
R. T. Humphrey	67,000.00	— 200	— 324	— 700	—\$400	.....	— 460	— 300	.....
Hoge & Luebker Co. (Inc.)	59,892.00	— 320	— 275	— 750	— 750	.....	— 420	— 300	—\$90
W. E. Mooney	66,693.00	— 375	— 324	— 625	— 625	— 25	— 415	— 325	— 200
Thos. H. Melton	59,950.00	— 250	— 275	— 500	— 400	— 20	— 400	— 300	.....
H. J. Montgomery	64,800.00	— 250	— 322	— 393	+ 300	.....	— 470	— 305	+237
W. H. McCray	66,500.00	— 240	— 324	— 550	.....	— 20	— 410	— 305	.....
Skinker & Garrett ¹	60,470.00	— 278	— 288	— 848	— 320	.....	— 430	— 320	.....
Burgess & Parsons	64,900.00	— 200	— 320	— 200	— 250	.....	— 60	— 50	—100
Arthur L. Smith & Co.	69,021.60	— 150	— 275	— 753	— 700	— 59	— 410	— 305	.....
Davis Construction Co.	64,882.00	— 285	— 252	— 643	— 115	.....	— 490	— 320	.....

¹ 7 months.

Proposals of supplemental bids for the construction of the Alexander Crummel School building, No. 167, Gallaudet Street, opposite Central Avenue, Ivy City, D. C.

[Opened Mar. 2, 1911.]

Bidders.	Price complete.	Time.	Alternate—					
			A.	B.	C.	D.	E.	F.
Hoge & Luebker Co. (Inc.)	\$51,000	6 months..	—\$675	—\$1,800	—\$275	—\$65	—\$168	—\$244
Allan T. Howison	51,000	do.....	— 425	— 2,900	— 170	.....	— 200	— 540

Bidders.	Alternate—											
	G.	H.	I.	J.	K.	L.	M.	N.	O.	P.	Q.	R.
Hoge & Luebker Co. (Inc.)	— \$464	.....	—\$150	—\$75	—\$250	—\$104	—\$65	—\$150	—\$35	—\$80	—\$66	—\$40
Allan T. Howison	—1,085	—\$160	— 195	—260	— 350	— 190	— 95	— 50	—100	—100	.....	— 50

Proposals for constructing a manual-training school building, located at the intersection of Wisconsin Avenue and Thirty-third Street NW.

[Opened Mar. 15, 1911.]

Bidders.	Price complete.	Time.	Alternate—			
			A.	B.	C.	D.
A. T. Howison	\$30,680	.....	—\$125	+ \$50	—\$100	—\$82
Arthur L. Smith & Co.	\$5,100	5 1/2 months..	— 300	—100	— 100	— 70
Randolph L. Jennings & Co.	29,972	Specified....	— 117	— 55	— 50	—150
Hoge & Luebker Co. (Inc.)	30,633	do.....	— 90	— 40	— 38	—240
Thos. H. Melton	28,900	do.....	— 150	—100	— 100	—130
D. J. Phipps	34,000	6 months....	— 325	—200	— 100	—250
W. H. McCray	31,400	Specified....	— 117	+150	.....	—175
R. T. Humphrey	34,900	do.....	— 300	—150	— 100	—300
W. E. Mooney	30,916	do.....	— 125	— 15	— 100	— 15
Burgess & Parsons	30,600	6 months....	— 190	— 25	— 80	—250
Skinker & Garrett	29,771	Specified....	— 115	— 98	— 100	—125

Proposals for constructing engine house No. 24, to be located on lots Nos. 83 and 800, square 3900.

[Opened Mar. 24, 1911.]

Bidders.	Price complete.	Time.	Alternate—					
			A.	B.	C.	D.	E.	F.
W. E. Mooney.....	\$21,775	5 months..	-\$213	-\$175	+\$189	-\$45	-\$187	-\$55
Arthur L. Smith & Co.....	22,755	6 months..	- 225	- 125	+ 200	-125	- 150	- 40
Burgess & Parsons.....	23,500	do.....	- 200	- 65	+ 150	-100	- 275	- 50
Hoge & Luebker Co., Inc.....	22,432	Specified..	- 120	- 125	+ 395	.....	- 280	- 72
Allan T. Howison.....	21,965	5 months..	- 135	- 140	+ 480	-125	- 266	- 50
Skinker & Garrett.....	22,640	Specified..	- 197	- 138	+ 433	.....	- 235	- 60
Randolph L. Jennings.....	22,780	do.....	- 130	- 110	+ 237	.....	- 287	- 40
W. H. McCray.....	24,943	do.....	- 215	- 185	+ 318	.....	- 311	-115

Bidders.	Alternate—							
	G.	H.	I.	J.	K.	L.	M.	N.
W. E. Mooney.....	.....	+\$125	-\$375	.....	+\$135	-\$50	-\$75	-\$25
Arthur L. Smith & Co.....	-\$19	+ 60	- 345	.....	+ 80	- 50	- 65	- 6
Burgess & Parsons.....	.....	- 10	- 225	.....	+ 300	.....	- 50	- 20
Hoge & Luebker Co., Inc.....	.....	+ 154	- 100	.....	+ 225	.....	- 19	- 4
Allan T. Howison.....	+ 10	+ 10	- 345	.....	+ 200	- 50	- 35	- 60
Skinker & Garrett.....	.....	+ 112	- 291	.....	.....	- 50	- 65	- 25
Randolph L. Jennings.....	+ 20	- 45	- 345	.....	+ 150	.....	- 70	- 20
W. H. McCray.....	+ 45	+ 25	- 291	.....	+ 305	.....	-100	- 20

Proposals for constructing shelter and storage buildings for Rosedale playgrounds.

[Opened Mar. 30, 1911.]

Bidders.	Price complete.	Alternate—					
		A.	B.	C.	D.	E.	F.
Skinker & Garrett.....	\$5,889	-\$441	-\$342	-\$87	.....	-\$705	-\$49
Burgess & Parsons.....	5,225	- 50	- 10	- 50	-\$10	- 700	- 80
Allan T. Howison.....	5,280	.....	.....	- 65	- 33	- 695	- 54
Arthur L. Smith & Co. ¹	4,850	.....	.....	.....	.....	.....	.....

Bidders.	Alternate—					Combination proposal, price for both buildings. ²
	G.	H.	I.	J.	K.	
Skinker & Garrett.....	-\$84	-\$162	-\$59	+\$190	-\$100	\$11,700
Burgess & Parsons.....	- 10	- 120	- 40	+ 175	- 20	10,400
Allan T. Howison.....	- 75	- 170	- 80	+ 178	- 120	10,557
Arthur L. Smith & Co. ¹.....	.....	.....	.....	.....	.....	.....

¹ June 19.

² Includes Rosedale shelter house, Eighteenth and Gales Streets NE.

Proposals for constructing shelter and storage buildings for Georgetown playgrounds.

[Opened Mar. 30, 1911.]

Bidders.	Price complete.	Alternate—					
		A.	B.	C.	D.	E.	F.
Skinker & Garrett.....	\$5,880	—\$441	—\$342	.....	.....	—\$705	—\$49
Burgess & Parsons.....	5,200	— 50	— 10	—\$50	—\$10	— 700	— 80
Allan T. Howison.....	5,377	.....	.....	— 65	— 44	— 695	— 54
Arthur L. Smith & Co.....	4,900	.....	.....	.....	.....	.....	.....

Bidders.	Alternate—					Combination proposal, price for both buildings. ¹
	G.	H.	I.	J.	K.	
Skinker & Garrett.....	—\$84	—\$162	—\$59	—\$93	—\$100	\$11,700
Burgess & Parsons.....	— 5	— 120	— 40	— 85	— 20	10,400
Allan T. Howison.....	— 75	— 170	— 80	— 87	— 120	10,557
Arthur L. Smith & Co.....	.....	.....	.....	.....	.....	.....

¹ Includes Georgetown shelter house, corner Thirty-fifth Street and Volta Place NW.*Proposals for construction of shelter and storage buildings for the Georgetown and Rosedale playgrounds under modified specifications.*

[Opened Apr. 13, 1911.]

Bidders.	For shelter at—		Both shelters, alternate—				
	Georgetown playgrounds.	Rosedale playgrounds.	A.	B.	C.	D.	E.
Skinker & Garrett.....	\$5,880.00	\$5,899.00	—\$358.00	—\$562.00	.....	—\$25.00	—\$664.00
Burgess & Parsons.....	5,400.00	5,300.00	— 270.00	— 180.00	—\$5.00	— 30.00	— 60.00
Allan T. Howison.....	5,326.77	5,242.27	— 438.00	— 175.00	— 8.00	— 20.00	— 340.88
Arthur L. Smith & Co.....	4,850.00	4,850.00	— 205.00	— 160.00	.....	— 20.00	— 51.00

Bidders.	Both shelters, alternate—					Combined proposal.	Combined proposal, including alternates.
	F.	G.	H.	I.	J.		
Skinker & Garrett.....	+ \$30.00	— \$745.00	— \$172.00	— \$129.00	— \$142.00	\$11,700.00	\$11,400.00
Burgess & Parsons.....	— 30.00	— 350.00	— 140.00	.....	+ 100.00	10,700.00	8,770.00
Allan T. Howison.....	+ 36.00	— 736.70	— 178.85	— 184.00	— 79.10	10,495.00	6,245.94
Arthur L. Smith & Co.....	— 20.00	— 250.00	— 120.00	— 50.00	+ 125.00	9,700.00	8,173.00

Proposals for constructing Cardozo Manual Training School building at the corner of First and I Streets SW.

[Opened Apr. 17, 1911.]

Bidders.	Price complete.	Time.	Alternate—				
			A.	B.	C.	D.	E.
Thos. H. Melton.....	\$29,000	6 months.	-\$287	-\$135	-\$350	-\$145	.....
Burgess & Parsons.....	28,900	Specified time.	- 500	- 50	- 100	- 180	-\$90.00
Randolph L. Jennings & Co.....	28,674	.....do.....	- 250	.....	- 470	- 174	- 13.50
Hoge & Luebker Co.....	28,700	.....do.....	- 595	- 320	.....	- 159	- 55.00
Arthur L. Smith & Co.....	29,923	6½ months	- 345	- 100	- 520	- 159	- 180.00
S. H. Maddox Co.....	30,700	7 months	.....	.....	- 250	- 187	- 325.00
Skinker & Garrett.....	27,624	6 months	.....	.....	- 495	- 169	- 27.00
Allan J. Howison.....	27,420	5 months	- 300	+ 80	- 159	- 160	.....
R. J. Humphrey.....	32,800	.....	.....	.....	- 500	- 159	- 350.00

Proposals for constructing a mortuary building at the Tuberculosis Hospital, between Thirteenth, Fourteenth, Upshur, and Varnum Streets.

[Opened Apr. 27, 1911.]

Bidders.	Price complete.	Alternate—			
		A.	B.	C.	D.
Hoge & Luebker Co. (Inc.).....	\$6,070	-\$475	.....	-\$100	-\$58
Wm. Rothwell & Son.....	5,841	- 413	-\$200	- 250	- 55
Skinker & Garrett.....	4,742	- 352	+ 145	- 105	- 62
Burgess & Parsons.....	5,100	- 280	- 40	- 140	- 64
W. E. Mooney.....	5,177	.....	.....	.....	.....

Proposals for constructing an eight-room school building, No. 166, to be located on the northeast corner of Thirtieth and R Streets SE.

[Opened June 29, 1911.]

Bidders.	Price complete.	Alternate—							
		A.	B.	C.	D.	E.	F.	G.	H.
W. H. McCray.....	\$67,500	-\$170	-\$260	-\$750	.....	.....	-\$410	-\$305	.....
McKay & Morris.....	66,361	- 200	- 260	.....	-\$200	.....	- 410	- 305	-\$100
Allan T. Howison.....	60,388	- 250	- 260	- 210	- 230	.....	- 410	- 305	+ 95
W. E. Mooney.....	67,715	- 195	- 260	700	- 500	+\$5	- 412	- 314	- 150
Hoge & Luebker Co.....	61,273	- 215	- 260	- 750	- 700	- 15	- 410	- 305	- 90
Skinker & Garrett.....	59,818	- 270	- 270	- 830	- 320	.....	- 430	- 320	.....

Proposals for constructing the James Ormond Wilson Normal School, No. 162, Eleventh Street, between Girard and Harvard Streets.

[Opened June 29, 1911.]

Bidders.	Job complete.	Time.	Alternate—				
			A.	B.	C.	D.	E.
Hoge & Luebker Co. (Inc.)	\$223,842	Specified time.	—\$2,420	.....	— \$115	+\$2,000	+\$18,200
Melton Construction Co.	217,735	12 months.	— 2,300	.....		+ 4,000	+ 18,000
Arthur L. Smith & Co.	217,300	13½ months	+ 760	.....	—1,200	+ 300	+ 10,200
Gormley & Poynton Co.	225,000	14 months.	— 1,000	.....		+ 3,500	+ 2,000
Geo. Wyne.	216,900	12 months.	— 3,500	.....		+ 2,000	+ 18,000
Arthur Cowsill.	236,670	Specified time.	— 2,000	—\$900	— 300	+ 3,000	+ 20,000
Davis Construction Co	219,440	.....	— 1,560	— 400	— 25	+ 3,150	+ 16
Allan J. Howison	218,900	12 months.	.....	— 233	— 125	.....	+ 18,501 + 1,600

Bidders	Alternate—						Footings.
	F.	G.	H.	I.	J.	K.	
Hoge & Luebker Co. (Inc.)	—\$650	.....			—\$716	.....	.....
Melton Construction Co.			+\$250	+\$500	— 716	+ \$700	+ 1 \$9. 50
Arthur L. Smith & Co.	— 150	— \$160	+ 400	+ 200	— 716	+ 1,200	+ 7. 50
Gormley & Poynton Co.	— 500	.....	+ 850	+ 100	— 700	+ 1,500	+ 7. 00
Geo. Wyne	.....	.....	+ 650	+ 300	— 716	+ 1,000	+ 6. 00
Arthur Cowsill.	—12,000	— 400	+ 100	+ 800	— 780	+ 2,100	5. 60
Davis Construction Co	— 3,172	.....	.....	.....	— 750	+ 1,500	.....
Allan J. Howison	— 2,000	—1,800	+ 350	.....	— 750	.....	6. 00

¹ Per cubic yard.

PROPOSALS FOR REPAIRS, ETC., TO MUNICIPAL BUILDINGS.

Proposals for constructing additions and making alterations to the Western High School, Thirty-fifth and Reservoir Streets NW.

[Opened July 18, 1910.]

Bidders.	Time.	Remove steel ceilings and install compoboard in the assembly hall and lunch room and on the ceilings of the extensions of these rooms.	Change windows, cornices, belt courses, and sill courses as shown on plans.	Build central extension, including lunch room, library, and porch.	Build concrete steps and rubble retaining walls on south side.	Build 4 northwest rooms, north addition.
W. H. McCray	9 months.	\$1,700	\$5,600	\$31,300	\$2,300	\$8,400
Thos. H. Melton	6½ months.	1,727	5,447	31,038	2,344	8,160

Proposals for constructing proposed toilet accommodations at the market master's office, south of Little B Street, between Tenth and Twelfth Streets NW.

[Opened July 18, 1910.]

Bidders:		
Coberth, Hanes & White	.....	\$369
Warner & Rittenhouse	.....	540
William Rothwell & Son	.....	374

Proposals for furnishing two new boilers in the Sumner School Building, No. 19, corner Seventeenth and M Streets NW.

[Opened Aug. 8, 1910.]

Bidders.	Time.	For work complete.
Dowd Bros.....	60 days....	\$2,079
J. E. Hurley.....	30 days....	1,482
Keystone Furnace Co.....	60 days....	2,355
G. W. Forsberg.....	70 days....	2,300

Proposals for repairs to and changes in plumbing in the Hilton and Anthony Bowen School Buildings, Nos. 115 and 109.

[Opened Aug. 10, 1910.]

Bidders:		
Wm. Rothwell & Son.....		\$7,449.00
S. S. Shedd & Bro. Co.....		6,989.50
Coberth, Hanes & White.....		7,313.00

Proposals for furnishing blower, motor, and connections at Chevy Chase School.

[Opened Aug. 11, 1910.]

Bidders.	Time.	Price complete.
Keystone Furnace Co.....	45 days....	\$697
J. D. Thompson Co.....		879
Standard Engineering Co.....		830

Proposals for plumbing work at the Addison School Building.

[Opened Sept. 6, 1910.]

Bidders:		
Coberth, Hanes & White Co. (Inc.).....		\$417
William Rothwell.....		356

Proposals for plumbing work at the Force School Building.

[Opened Sept. 6, 1910.]

Bidders:		
Coberth, Hanes & White Co.....		\$395
Wm. Rothwell.....		370

Proposals for plumbing work at the Curtis School Building.

[Opened Sept. 6, 1910.]

Bidders:		
Coberth, Hanes & White.....		\$414
William Rothwell.....		416

Proposals for plumbing work at the Hyde School Building.

[Opened Sept. 6, 1910.]

Bidders:		
Coberth, Hanes & White Co.....		\$85
William Rothwell.....		60

Proposals for grading, cement surface work, concrete retaining wall, wire fencing, sodding and sodding at the Strong John Thomson School building, corner Twelfth and L Streets NW.

[Opened Dec. 3, 1910.]

Bidders.	Work complete.	Grading.	Concrete walks, etc.	Concrete driveway.	Concrete retaining wall.	Sodding.	Wire fencing.	Relocation of traps.
Burgess & Parsons.....	\$2,797	\$425	\$650		\$250	\$950	\$275	\$75
Lake Stone Co.....	1,377		749	\$346	164	118		
R. J. Beall Construction Co.....	2,244	449	666	285	390	160	240	75
Boyle-Robertson Construction Co.....	2,593	687	646	414	271	217	352	65
Wm. Rothwell & Son.....	2,525	450	800	470	215	175	350	65

Proposals for constructing concrete steps and rubble retaining walls on the south side of the Western High School.

[Opened Dec. 30, 1910.]

Bidders.	Work complete.	Alternate—	
		A.	B.
Louis Perna.....	\$3,580	None.	—\$160
Boyle-Robertson Construction Co. (Inc.).....	4,734	—\$100	— 100
G. W. Phillips.....	4,269	None.	None.

Proposals for alterations on east front Western High School, changing windows, entrance steps, etc.

[Opened Dec. 30, 1910.]

Bidders.	Proposal.	Alternate A.
Hoge & Luebker Co. (Inc.).....	\$5,729	—\$500
Boyle-Robertson Construction Co. (Inc.).....	7,346	— 520
Benjamin B. Knell.....	5,600	— 350

Proposals for constructing coal vault, etc., at engine house No. 2.

[Opened Dec. 30, 1910.]

Bidders.	Proposal.	Time.
Benjamin B. Knell.....	\$1,777	30 days.
Wm. Rothwell & Son.....	975	Specified.
Boyle-Robertson Construction Co.....	1,394	Do.
W. E. Mooney.....	1,360	Do.

Proposals for two iron stairways for the Western High School, No. 117.

[Opened Feb. 1, 1911.]

Bidders.	Amount.	Time.
Alexandria Ironworks.....	\$335	3 weeks.
A. F. Jorss.....	196	30 days.
Fred J. White.....	179	3 weeks.

Proposals for constructing additions and making alterations to the Western High School, Thirty-fifth Street, between R and Reservoir Streets NW.

[Opened Mar. 6, 1911.]

Bidders.	Work complete.	Time.	Alter-nate A.	Alter-nate B.	Alter-nate C.	Alter-nate D.	Alter-nate E.	Alter-nate F.	Alter-nate G.
Thos. H. Melton....	\$50,417	Specified..	— \$980	— \$1,250	— \$100	.....	— \$2,000	— \$3,100	— \$7,600
Skinker & Garrett..	47,529	...do.....	— 1,800	— 1,727	— 133	+ \$100	— 1,620	— 3,109	— 9,289

Proposals for electric wiring at the Chevy Chase School.

[Opened Mar. 15, 1911.]

Bidders.	Price complete.	Time.
Thos. J. Williams & Co.....	\$28	3 days.
F. W. Leonhardt.....	46	

Proposals for doing plumbing work at the Central High School.

[Opened Apr. 6, 1911.]

Bidders.	Work, complete.	Time.
Warner & Rittenhouse.....	\$1,315.00	28 working days.
Coberth, Hanes & White Co. (Inc.).....	1,297.00	50 days.
Ed. J. Hannan.....	1,318.90	

Proposals for extending cold-air inlet at the police court building.

[Opened Apr. 14, 1911.]

Bidders.	Work, complete.	Time.
Ernest Gichner ¹	\$393	12 days.
O. L. Wolfsteiner Co.....	315	Apr. 29.
Wm. Rothwell & Son.....	495	15 days.

¹ Informal; no check.

Proposals for pebble dashing all brick walls from grade to bottom member of cornice and the north wall of the old building of the Chevy Chase School, No. 113, Chevy Chase, D. C.

[Opened Apr. 14, 1911.]

Bidders.	Work complete.	Time.
Murray Bros.....	\$1,680	24 working days.
Geo. E. Barbee.....	1,970	Specified.
Allan T. Howison.....	1,552	Do.
Wm. Rothwell & Son.....	1,800	45 working days.
R. J. Beall Construction Co.....	1,789	40 working days.

Proposals for constructing coal vault at No. 2 Engine House.

[Opened Apr. 18, 1911.]

Bidders.	Price complete.	Time.
Skinker & Garrett.....	\$722	Specified.
Charles Henry Knight.....	795	Do.
Wm. Rothwell & Son.....	793	35 days.

Proposals for construction of an extension of the cement warehouse, located at Fourteenth and D Streets SW.

[Opened Apr. 28, 1911.]

Bidders.	Price complete.	Remarks.
W. E. Mooney.....	\$10,166	\$50.83 per linear foot of building.
Wm. Rothwell.....	9,500	257 feet of building, \$37; additional feet without doors, \$35.
Thos. H. Melton.....	8,600	200 linear feet of building, at \$43 per 100 feet; all over 200 feet, \$43.
Skinker & Garrett.....	9,500	184 linear feet of building, \$49.44 per linear foot, plus \$409 for the end.
Burgess & Parsons.....	9,500	238 linear feet of building, \$40 per linear foot.

Proposals for remodeling showers and teachers' toilet room at the Business High School.

[Opened May 15, 1911.]

Bidders.	Work, complete.	Time.
Warner & Rittenhouse.....	\$1,895	35 working days.
Coberth, Hanes & White Co.....	1,560	30 working days.
Skinker & Garrett.....	1,772	60 working days.
William Rothwell & Son.....	1,836	Do.

Proposals for constructing conduits and wiring for electric lights, etc., in No. 24 Engine House, Georgia Avenue and Rock Creek Church Road.

[Opened May 22, 1911.]

Carroll Electric Co.....	\$449.00
Arthur F. Carroll.....	453.00
F. W. Leonhardt.....	495.00
Kluckhuhn & Bro.....	375.00

Proposals for making changes in plumbing at the Fort Reno School Building.

[Opened June 27, 1911.]

Coberth, Hanes & White Co.....	\$3,646.00
Wm. Rothwell & Son.....	3,500.00
S. S. Shedd & Bro. Co.....	3,483.75

Proposals for plumbing work at the Grant School.

[Opened June 27, 1911.]

Coberth, Hanes & White Co. (Inc.).....	\$1,434.00
Wm. Rothwell & Son.....	1,468.00
S. S. Shedd & Bro. Co.....	1,050.85
John Douglas, \$263.50 more for Clow closets.	

Proposals for making repairs to and changes in plumbing at the Congress Heights School Building.

[Opened June 27, 1911.]

Wm. Rothwell & Son.....	\$5,097.00
S. S. Shedd & Bro. Co.....	4,952.10
Coberth, Hanes & White Co.....	5,249.00

Proposals for plumbing work at the Henry School.

[Opened June 27, 1911.]

Wm. Rothwell & Son.....	\$2,848.00
Coberth, Hanes & White Co.....	3,000.00
S. S. Shedd & Bro. Co.....	3,114.50

PROPOSALS FOR SEWER CONSTRUCTION.

Schedule of proposals for the construction of Piney Branch trunk sewer.

[Opened Aug. 29, 1910.]

SEWER A.

Bidders.	Ordinary excavation (per cubic yard).	Vitrified brick masonry (per cubic yard).	Concrete masonry B (per cubic yard).	Concrete masonry C (per cubic yard).
W. F. Brenizer Co.....	\$0.60	\$20.00	\$7.00	\$6.75
Geo. Hyman.....	.25	19.00	7.60	7.25
Ryan & Reilly.....	.40	21.50	8.76	8.08
R. J. Beall Construction Co.....				
E. G. Gummel.....	.49	19.40	7.16	7.24

SEWER B.

Bidders.	Ordinary excavation (per cubic yard).	Vitrified brick masonry (per cubic yard).	Concrete masonry B (per cubic yard).	Concrete masonry C (per cubic yard).	Concrete masonry D (per cubic yard).
W. F. Brenizer Co.....	\$0.55	\$20.00	\$7.00	\$6.75	\$7.00
Geo. Hyman.....	.40	19.00	7.60	7.25	7.00
Ryan & Reilly.....	1.00	22.00	9.00	8.50	11.00
R. J. Beall Construction Co.....	.50	20.00	7.22	6.97	6.97
E. G. Gummel.....	.49	19.40	7.16	7.24	7.18

Proposals for the construction of sewers in the vicinity of Brightwood, D. C.

[Opened Aug. 29, 1910.]

Bidders.	Ordinary excavation (per cubic yard).	Sewer brick masonry (per cubic yard).	24-inch diameter pipe sewer (per linear foot).	21-inch diameter pipe sewer (per linear foot).	18-inch diameter pipe sewer (per linear foot).	15-inch diameter pipe sewer (per linear foot).	12-inch diameter pipe sewer (per linear foot).
W. F. Brenizer Co.....	\$0.55	\$13.00	\$1.10	\$0.90	\$0.80	\$0.65	\$0.60
Geo. Hyman.....	.65	14.00	1.00	.90	.80	.65	.60
E. G. Gummel.....	.75	16.00	1.15	.95	.85	.70	.57
Howard R. Bitting.....	.59	14.50	1.25	.90	.79	.67	.57
Jas. A. Coyle.....	.55	13.00	1.10	.90	.80	.65	.60

Proposals for the construction of sewers in the vicinity of Cleveland Park, D. C.

[Opened Aug. 29, 1910.]

SEWER A.

Bidders.	Ordinary excavation (per cubic yard).	Sewer brick masonry (per cubic yard).	12-inch diameter pipe sewer (per linear foot).	10-inch diameter pipe sewer (per linear foot).
W. F. Brenizer Co.....	\$0.50	\$13.00	\$0.60	\$0.50
Howard R. Bitting.....	.57½	14.50	.65	.54
E. G. Gummel.....	.85	16.00	.57	.47
Geo. Hyman.....	.65	14.00	.55	.45

SEWER B.

Bidders.	Ordinary excavation (per cubic yard).	Sewer brick masonry (per cubic yard).	12-inch diameter pipe sewer (per linear foot).
W. F. Brenizer Co.....	\$0.90	\$13.00	\$0.65
Howard R. Bitting.....	1.25	14.50	.68
E. G. Gummel.....	1.50	16.80	.57
Geo. Hyman.....	.65	14.00	.55

Proposals for the construction of sewer, Macomb Street, Cleveland Park.

[Opened Nov. 17, 1910.]

Bidders.	Ordinary excavation (per cubic yard).	Sewer brick masonry laid (per cubic yard).	For vitrified brick masonry laid (per cubic yard).	For concrete masonry D in place (per cubic yard).
Geo. Hyman.....	\$0.80	\$15.00	\$21.00	\$8.35
Warren F. Brenizer Co.....	.55	13.00	20.00	6.45
James A. Coyle.....	.70	14.00	24.00	8.00
E. G. Gummel.....	.40	12.00	20.00	6.50

NOTE.—These bids were rejected.

Proposals for the construction of storm and separate sewers in the vicinity of the Bureau of Engraving and Printing.

[Opened Dec. 19, 1910.]

SEWER A.

Bidders.	Ordinary excavation (per cubic yard).	Brick masonry (per cubic yard).	24-inch diameter pipe sewer (per linear foot).	21-inch diameter pipe sewer (per linear foot).
Warren F. Brenizer Co.....	\$0.60	\$13.00	\$0.90	\$0.80
E. G. Gummel.....	1.50	15.00	1.25	1.15
George Hyman.....	.45	13.00	.90	.80

Proposals for the construction of storm and separate sewers in the vicinity of the Bureau of Engraving and Printing—Continued.

SEWER B.

Bidders.	Ordinary excavation (per cubic yard).	Brick masonry (per cubic yard).	24-inch diameter pipe sewer (per linear foot).
Warren F. Brenizer Co.....	\$0.55	\$13.00	\$0.90
E. G. Gummel.....	1.50	15.00	1.25
George Hyman.....	.45	13.00	.90

Proposals for the reconstruction of portion of the Rock Creek and B Street intercepting sewer, between Pennsylvania Avenue and M Street.

[Opened Dec. 19, 1910.]

Bidder.	Ordinary excavation (per linear foot of trench).	Brick masonry laid (per cubic yard).	Vitrified brick masonry (per cubic yard).	Concrete masonry B (per cubic yard).	Concrete masonry C (per cubic yard).
Warren F. Brenizer Co.....	\$24.00	\$20.00	\$25.00	\$15.00	\$14.00

Proposals for the construction of sewers in the vicinity of Langdon, D. C.

[Opened Dec. 19, 1910.]

Bidders.	Ordinary excavation (per cubic yard).	Brick masonry (per cubic yard).	Vitrified brick masonry (per cubic yard).	Concrete masonry D (per cubic yard).	6-inch subdrain pipe (per linear foot).	24-inch D pipe sewer (per linear foot).	21-inch D pipe sewer (per linear foot).
Warren F. Brenizer Co.....	\$0.65	\$13.00	\$21.00	\$7.00	\$0.30	\$1.10	\$0.95
E. G. Gummel.....	.70	14.00	18.00	7.00	.20	1.00	.90
George Hyman.....	.49	13.00	20.00	7.00	.30	1.05	.95

Proposals for the construction of Florida Avenue trunk sewer.

[Opened Dec. 19, 1910.]

Bidders.	Ordinary excavation (per cubic yard).	Vitrified brick masonry (per cubic yard).	Concrete masonry D (per cubic yard).	6-inch subdrain pipe (per linear foot).
Warren F. Brenizer Co.....	\$0.80	\$21.00	\$7.00	\$0.30
E. G. Gummel.....	1.25	18.00	8.50	.25

Proposals for the construction of sewers in the vicinity of Anacostia, D. C.

[Opened Dec. 19, 1910.]

Bidders.	Ordinary excavation (per cubic yard).	Sewer brick masonry (per cubic yard).	12-inch D pipe sewer (per linear foot).
Warren F. Brenizer Co.....	\$0.50	\$13.00	\$0.60
E. G. Gummel.....	.50	13.00	.55
George Hyman.....	.49	13.00	.54
James A. Coyle.....	.80	16.00	.70

Proposals for the construction of sewers in the vicinity of Tenleytown.

[Opened Dec. 19, 1910.]

Bidders.	Ordinary excavation (per cubic yard).	Brick masonry (per cubic yard).	15-inch D pipe sewer (per linear foot).	12-inch D pipe sewer (per linear foot).	10-inch D pipe sewer (per linear foot).
Warren F. Brenizer Co.....	\$0.50	\$13.50	\$0.68	\$0.60	\$0.55
E. G. Gummel.....	.55	15.00	.69	.58	.50
James A. Coyle.....	.55	14.00	.75	.60	.50

Proposals for the construction of Rock Creek main interceptor, P Street to Military Road (sec. 1, P Street to Massachusetts Avenue).

[Opened Jan. 3, 1911.]

Bidders.	Ordinary excavation (per cubic yard).	Brick masonry (per cubic yard).	Vitrified brick masonry (per cubic yard).	Concrete masonry B (per cubic yard).
Warren F. Brenizer Co.....	\$0.77	\$14.00	\$22.00	\$7.25
E. G. Gummel.....	.55	14.00	20.00	7.00
Alfonso A. Alfieri.....	.63	10.00	19.47	7.73
The Whiting-Middleton Construction Co.....	2.29	20.00	23.75	8.05
Frank B. Sweeten, by Sweeten & Son.....	1.50	20.00	30.00	9.00

Proposals for the construction of sewers in the vicinity of Potomac Heights Subdivision.

[Opened Feb. 21, 1911.]

Bidder.	Ordinary excavation (per cubic yard).	For concrete masonry D (per cubic yard).	Sewer brick masonry (per cubic yard).	For 18-inch D sewer pipe (per linear foot).	For 12-inch D sewer pipe (per linear foot).	For 10-inch D sewer pipe (per linear foot).
Warren F. Brenizer Co.....	\$0.47	\$7.80	\$13.50	\$0.80	\$0.60	\$0.50

Proposals for the construction of Georgia Avenue trunk sewer.

[Opened Feb. 21, 1911.]

Bidder.	Ordinary excavation (per cubic yard).	Concrete masonry D (per cubic yard).	Vitrified brick masonry (per cubic yard).	Sewer brick masonry (per cubic yard).
Warren F. Brenizer Co.....	\$0.50	\$6.40	\$20.50	\$13.50

Proposal for the construction of 340 linear feet of 15 inch diameter sewer in Fifteenth Street NW. between New York Avenue and I Street.

[Opened Apr. 6, 1911.]

Bidder.	Ordinary excavation (per cubic yard).	Sewer brick masonry (per cubic yard).	15 inch diameter pipe sewer (per linear foot).
Warren F. Brenizer Co.....	\$1.60	\$14.00	\$1.30

Proposals for constructing sewers in the vicinity of Cleveland Park.

[Opened May 1, 1911.]

Bidder.	Excavation, etc. (per linear foot of trench).	Sewer brick masonry (per cubic yard).	10-inch pipe sewer (per linear foot).
Geo. Hyman.....	\$2.40	\$14.00	\$0.55
The Warren F. Brenizer Co.....	1.40	14.00	.70

Proposals for construction of sewer in First Street SE., between P and N Streets.

[Opened May 8, 1911.]

Bidder.	Ordinary excavation (per cubic yard).	Sewer brick masonry (per cubic yard).	12 inch di- ameter pipe sewer (per linear foot).
The Warren F. Brenizer Co.....	\$0.95	\$13.00	\$0.70
Geo. Hyman.....	1.75	15.00	.75
James A. Coyle.....	1.00	14.00	.80

Proposals for the construction of First Street SE. trunk sewer.

[Opened May 8, 1911.]

Bidder.	Ordinary excavation (per cubic yard).	Concrete masonry B (per cubic yard).	Concrete masonry D (per cubic yard).	Vitrified brick masonry (per cubic yard).	Sewer brick masonry (per cubic yard).
Geo. Hyman.....	\$0.75	\$7.00	\$6.50	\$20.00	\$14.00
The Warren F. Brenizer Co.....	.80	7.00	6.50	21.00	13.00

Proposals for constructing section H east side intercepting sewer, boundary to Brookland.

[Opened May 8, 1911.]

SECTION NO. 1.

Bidder.	Ordinary excavation (per cubic yard).	Concrete masonry D (per cubic yard).	Vitrified brick masonry (per cubic yard).	Sewer brick masonry (per cubic yard).
Geo. Hyman.....	\$0.80	\$8.50	\$25.00	\$20.00
The Warren F. Brenizer Co.....	1.40	10.00	22.00	18.00

SECTION NO. 2.

Bidder.	Ordinary excavation (per cubic yard).	Concrete masonry D (per cubic yard).	Vitrified brick masonry (per cubic yard).	Sewer brick masonry (per cubic yard).
Geo. Hyman.....	\$0.60	\$7.25	\$20.00	\$14.00
The Warren F. Brenizer Co.....	.75	8.00	21.00	14.00

Proposals for the construction of sewer in Fifteenth Street NW. between Pennsylvania Avenue and G Street.

[Opened June 1, 1911.]

Bidder.	Ordinary excavation (per cubic yard).	Sewer brick masonry laid (per cubic yard).	15 inch diameter pipe sewer (per linear foot).
Warren F. Brenizer Co.....	\$2.25	\$14.00	\$1.40
Jas. A. Coyle.....	2.25	20.00	1.25
Geo. Hyman.....	2.40	14.00	1.25

Proposals for construction of sewer in H Street NW. between Fourteenth and Fifteenth Streets.

[Opened June 1, 1911.]

Bidder.	Ordinary excavation (per cubic yard).	Sewer brick masonry (per cubic yard).	12 inch diameter pipe sewer (per linear foot).
Jas. A. Coyle.....	\$2.00	\$20.00	\$1.20
Geo. Hyman.....	1.50	14.00	1.15
Warren F. Brenizer Co.....	1.50	14.00	1.25

Proposals for the construction of service sewer, Rock Creek Valley north of Military Road.

[Opened June 5, 1911.]

Bidder.	Ordinary excavation (per cubic yard).	Concrete masonry D (per cubic yard).	Special molded concrete arch (per linear foot).	Sewer brick masonry (per cubic yard).
Geo. Hyman.....	\$0.70	\$9.00	\$0.30	\$14.00
W. H. & C. F. Thompson.....	1.50	8.50	.20	16.00
Warren F. Brenizer Co.....	.49	7.75	.35	13.00

Proposals in the vicinity of Tenleytown, D. C.

[Opened June 5, 1911.]

SEWER A.

Bidders.	Ordinary excavation (per cubic yard).	Sewer brick masonry (per cubic yard).	12-inch pipe sewer (per linear foot).	8-inch pipe sewer (per linear foot).
Geo. Hyman.....	\$0.75	\$14.00	\$0.60	\$0.50
W. F. Brenizer Co.....	.60	13.00	.65	.50
W. H. & C. F. Thompson.....	1.00	16.00	.50	.40

SEWER B.

Bidders.	Ordinary excavation (per cubic yard).	Sewer brick masonry (per cubic yard).	8-inch pipe sewer (per linear foot).
Geo. Hyman.....	\$0.75	\$14.00	\$0.50
W. F. Brenizer Co.....	.60	13.00	.50
W. H. & C. F. Thompson.....	1.00	16.00	.40

Proposals in the vicinity of Tenleytown, D. C.—Continued.

SEWER C.

Bidders.	Ordinary excavation (per cubic yard).	Sewer brick masonry laid (per cubic yard).	15-inch pipe sewer (per linear foot).	12-inch pipe sewer (per linear foot).	8-inch pipe sewer (per linear foot).
Geo. Hyman.....	\$0.75	\$14.00	\$0.75	\$0.60	\$0.50
W. F. Brenizer Co.....	.60	13.00	.75	.65	.50
W. H. & C. F. Thompson.....	1.00	16.00	.55	.50	.40

Proposals for the construction of sewers in the vicinity of Brookland, D. C.

[Opened June 5, 1911.]

SEWER A.

Bidders.	Ordinary excavation (per cubic yard).	Sewer brick masonry (per cubic yard).	15-inch pipe sewer (per linear foot).
Geo. Hyman.....	\$0.80	\$14.00	\$0.75
W. F. Brenizer Co.....	.90	14.00	.75
James A. Coyle.....	.48	13.00	.62½
W. H. & C. F. Thompson.....	1.00	16.00	.55

SEWER B.

Bidders.	Ordinary excavation (per cubic yard).	Sewer brick masonry (per cubic yard).	15-inch pipe sewer (per linear foot).	10-inch pipe sewer (per linear foot).
Geo. Hyman.....	\$0.80	\$14.00	\$0.75	\$0.60
W. F. Brenizer Co.....	.90	14.00	.75	.60
James A. Coyle.....	.48	13.00	.62½	.45
W. H. & C. F. Thompson.....	1.00	16.00	.55	.45

SEWER C.

Bidders.	Ordinary excavation (per cubic yard).	Sewer brick masonry (per cubic yard).	15-inch pipe sewer (per linear foot).	10-inch pipe sewer (per linear foot).
Geo. Hyman.....	\$0.80	\$14.00	\$0.75	\$0.60
W. F. Brenizer Co.....	.90	13.00	.75	.60
James A. Coyle.....	.48	13.00	.62½	.45
W. H. & C. F. Thompson.....	1.00	16.00	.55	.45

SEWER D.

Bidders.	Excavation, per cubic yard.	Masonry per cubic yard.	15-inch sewer, linear foot.	12-inch sewer, linear foot.	10-inch sewer, linear foot.
Geo. Hyman.....	\$0.80	\$14.00	\$0.75	\$0.65	\$0.60
W. F. Brenizer Co.....	.90	13.00	.75	.65	.60
James A. Coyle.....	.55	13.00	.62½	.55	.45
W. H. & C. F. Thompson.....	1.00	16.00	.55	.50	.45

Proposals for the construction of sewer in the vicinity of Cleveland Park.

[Opened June 5, 1911.]

Bidders.	Ordinary excavation (per cubic yard).	For concrete masonry D (per cubic yard).	For vitrified brick masonry (per cubic yard).	Sewer brick masonry (per cubic yard).
Geo. Hyman.....	\$0.60	\$7.50	\$20.00	\$13.00
W. H. & C. F. Thompson.....	1.20	7.50	25.00	16.00
W. F. Brenizer Co.....	.65	6.25	20.00	13.00

Proposals for the construction of sewer in B Street NW., between the Potomac River and Twenty-first Street.

[Opened June 5, 1911.]

Bidders.	Ordinary excavation (per cubic yard).	Concrete masonry D (per cubic yard).	Vitrified brick masonry (per cubic yard).	Sewer brick masonry (per cubic yard).
Geo. Hyman.....	\$2.50	\$8.00	\$20.00	\$14.00
W. F. Brenizer Co.....	.70	6.00	20.00	13.00
W. H. & C. F. Thompson.....	1.50	7.50	22.00	16.00

Proposals for the construction of sewer in B Street NW., between Nineteenth and Twenty-first Streets.

[Opened June 5, 1911.]

Bidders.	Ordinary excavation (per cubic yard).	Concrete masonry D (per cubic yard).	Vitrified brick masonry (per cubic yard).	Sewer brick masonry (per cubic yard).	24-inch pipe sewer laid (per linear foot).
Geo. Hyman.....	\$2.00	\$7.00	\$20.00	\$14.00	\$1.50
W. F. Brenizer Co.....	.70	6.00	20.00	13.00	.97
W. H. & C. F. Thompson.....	1.40	7.50	22.00	15.00	1.00

Proposals for the construction of sewer in Nineteenth Street NE.

[Opened June 5, 1911.]

Bidders.	Ordinary excavation (per cubic yard).	Concrete masonry D (per cubic yard).	Vitrified brick masonry (per cubic yard).	Sewer brick masonry (per cubic yard).
W. F. Brenizer Co.....	\$0.50	\$6.50	\$19.00	\$13.00
W. H. & C. F. Thompson.....	1.75	7.50	22.00	16.00
George Hyman.....	.90	8.50	20.00	14.00

Proposals for constructing Rock Creek main interceptor, section 2, Massachusetts Avenue to Connecticut Avenue.

[Opened June 21, 1911.]

Bidders.	Ordinary excavation (per cubic yard).	Concrete masonry D (per cubic yard).	Vitrified brick masonry (per cubic yard).	Sewer brick masonry (per cubic yard).
Geo. Hyman.....	\$0.30	\$7.75	\$21.00	\$14.00
Warren F. Brenizer Co.....	.80	8.00	21.00	14.00
Lyon Bros.....	1.60	10.90	25.00	18.00

All bids rejected; proposals readvertised to be opened July 12, 1911.

Proposals for the construction of Anacostia main interceptor, section 1, Poplar Point to Anacostia Bridge.

[Opened June 21.]

Bidders.	Ordinary excavation (per cubic yard).	Concrete masonry B (per cubic yard).	For vitrified brick masonry (per cubic yard).	For sewer brick masonry laid (per cubic yard).	For 6-inch subdrain pipe laid per linear foot.
Geo. Hyman.....	\$2.50	\$3.50	\$25.00	\$20.00	\$0.50
The Warren F. Brenizer Co.....	1.50	8.50	20.00	14.00	.30

All bids rejected; proposals readvertised to be opened under date of July 12, 1911.

PROPOSALS FOR ROADWAY AND SIDEWALK CONSTRUCTION.

Proposals for paving streets and avenues with sheet asphalt.

[Opened July 9, 1910.]

Bidders.	Laying standard asphalt pavement (per square yard).	Laying vitrified block (per square yard).
Barber Asphalt Paving Co.....	\$1.80	\$1.45
Cranford Paving Co.....	1.77	1.40

Proposals for laying asphalt-block pavements.

[Opened July 9, 1910.]

Bidder.	Laying 5-inch asphalt block pavement (per square yard).	Laying 4-inch asphalt block pavement (per square yard).
The Washington Asphalt Block & Tile Co.....		\$1.65

Proposals for grading Evarts Street NE., between Twentieth and Twenty-second Streets.

[Opened July 19, 1910.]

E. G. Gummel.....	\$0.74
Geo. Hyman.....	.47

Proposals for grading streets and avenues in the District of Columbia.

[Opened Aug. 15, 1910.]

Bidders.	Rhode Island Avenue NE. (per cubic yard).	Macomb Street NW. (per cubic yard).	Longfellow Street NW (per cubic yard).
Geo. Hyman.....	\$0.295	\$0.27	\$0.37
E. J. Cartwright.....	.325	.435	.45
Geo. B. Mullen.....		.57	.43
E. G. Gummel.....	.41	.49	.55
Warren F. Brenizer Co.....	.29		
Harper & Voigt.....	.295	.395	.275

Proposals for grading and improving suburban streets and avenues.

[Opened Aug. 15, 1910.]

Bidder.	Grading (per cubic yard).	Setting 6 by 20 inch granite or bluestone curb (per linear foot).	Setting 8 by 8 inch granite curb (per linear foot).	Paving or repaving cobble or granite block gutters (per square yard).	Paving vitrified block gutters on gravel base (per square yard).
E. G. Gummel.....	\$0.39	\$0.27	\$0.37	\$0.37	\$0.59

Proposals for grading Kearney Street NE., between Thirteenth and Eighteenth Streets.

[Opened Dec. 5, 1910.]

Warren F. Brenizer Co.....	\$0.35
G. B. Mullen.....	.33
Geo. Hyman.....	.22
Philip Padavano.....	.42
Harper & Voigt.....	.28
E. G. Gummel.....	.21

Proposals for making repairs to asphalt pavements.

[Opened Apr. 22, 1911.]

Bidders.	No. 1. Laying standard asphalt pavement (per square yard).		No. 2. Laying standard asphalt surface (per square yard).		No. 3. Laying standard asphalt surface (per square yard).		No. 4. Laying asphalt binder (per cubic foot).	
	A	B	A	B	A	B	A	B
Barber Asphalt Paving Co.....	\$1.78		\$0.77		\$0.77		\$0.26	
Cranford Paving Co.....	1.68	\$1.64	.64	\$0.61	.66	\$0.64	.28	\$0.27
Eastern Asphalt Paving Co.....		1.70		.83		.63		.29
F. E. Schenider Paving Co.....	2.00	1.92	.88	.83	.86	.83	.36	.34

Bidders.	No. 5. Laying standard asphalt surface (cuts), per cubic foot.		No. 6. Laying standard asphalt binder (cuts), per cubic foot.		No. 7. Laying standard asphalt surface for street railway (per cubic foot).		No. 8. Laying asphalt binder for repairs (per cubic foot).	
	A	B	A	B	A	B	A	B
Barber Asphalt Paving Co.....	\$0.57		\$0.41		\$0.62		\$0.52	
Cranford Paving Co.....	.57	\$0.54	.43	\$0.42	.63	\$0.60	.48	\$0.47
Eastern Asphalt Paving Co.....		.68		.32		.68		.32
F. E. Schenider Paving Co.....	.55	.52	.46	.44	.64	.60	.55	.50

Proposals for laying asphalt block pavements.

[Opened May 6, 1911.]

Bidder.	No. 1. Laying 4-inch asphalt block pavement with gravel base (per sq. yd.)	No. 2. Laying 3-inch asphalt block pavement with 4-inch concrete base (per sq. yd.)	4-inch block, north of Florida Avenue west of Rock Creek.	One square Kentucky Avenue SE. preferred, of 2-inch asphalt block on same base as 3-inch block.
Washington Asphalt Block & Tile Co.....	\$1.65	\$1.80	¹ \$0.15	² \$1.65

¹ Extra.² Per square yard.*Proposals for paving streets and avenues with sheet asphalt.*

[Opened May 6, 1911.]

Bidders.	No. 1. Laying standard asphalt pavement, 2½-inch surface, etc., and 6-inch concrete base.		No. 2. Laying vitrified block with 6-inch concrete base.
	A.	B.	
	<i>Per sq. yd.</i>	<i>Per sq. yd.</i>	<i>Per sq. yd. of block.</i>
Cranford Paving Co.....	\$1.70	\$1.67	\$1.40
Barber Asphalt Paving Co.....	1.76	.....	1.37

Proposals for improving Seventeenth Street NW., Mount Pleasant Street NW., and Fourteenth Street SE.

[Opened June 23, 1911.]

Bidders.	1. Setting 8 by 8-inch granite curb (per linear foot).	2. Paving vitrified block gutters on gravel base (per sq. yd.)	3. Laying bituminous macadam pavement (per sq. yd.)
Atlantic Bitulithic Co.....	\$0.32	\$0.85	\$1.21
Barber Asphalt Paving Co.....	.33	.75	1.17
Cranford Paving Co.....	.33	.88	.98

Proposals for grading and improving suburban streets and avenues.

[Opened June 29, 1911.]

Bidders.	Grading (per cubic yard).	Setting 6 by 20-inch granite or bluestone curb (per linear foot).	Setting 8 by 6-inch granite curb (per linear foot).	Paving or repaving cobble or granite block gutters (per square yard).	Paving vitrified block gutters on gravel base (per square yard).	Constructing cement curb (per linear foot).	Constructing cement gutter (per linear foot).
Harper & Voigt.....	\$0.43	\$0.33	\$0.39	\$0.37	\$0.59	\$0.44	\$0.35
R. J. Beall Construction Co.....	.49	.29	.34	.48	.74	.60	.20
E. G. Gummel.....	.44	.30	.39	.39	.69	.65	.50
George B. Mullin.....	.43	.25	.35	.36	.63	.77	.47

PROPOSALS FOR MISCELLANEOUS PURPOSES.

Proposals for furnishing and erecting portable comfort stations for playgrounds.

[Opened July 14, 1910.]

Bidders.	Price for one station.	Price for two stations (each).	Price for three stations (each).	Price for four stations (each).
H. M. Whitbeck.....	\$4.99	\$4.99	\$4.99	\$4.99
Ducker Co.....	5.00	4.85	4.85	4.85
Ducker Co. (supplemental bid).....	3.50	3.50	3.50	3.50

Proposals for furnishing cast-iron water-pipe specials.

[Opened July 27, 1910.]

Bidders.	Price for item A (per ton).	Price for item B (per ton).
Weatherly Foundry & Machine Co.....	\$51.74	.....
Camden Iron Works.....	58.24	\$56.00
Standard Cast Iron Pipe & Foundry Co.....	48.00	.....
United States Cast Iron Pipe & Foundry Co.....	.....	54.90
Lynchburg Foundry Co.....	.....	52.75

Proposals for furnishing cast-iron water pipe.

[Opened July 27, 1910.]

Bidders.	3-inch pipe, shell 0.34 inch thick (per ton).	4-inch pipe, shell 0.36 inch thick (per ton).	6-inch pipe, shell 0.42 inch thick (per ton).	8-inch pipe, shell 0.48 inch thick (per ton).	12-inch pipe, shell 0.57 inch thick (per ton).	20-inch pipe, shell 0.86 inch thick (per ton).
Glamorgan Pipe & Foundry Co.....	\$29.80	\$25.85	\$24.85	\$24.85	\$24.60	\$24.60
United States Cast Iron Pipe & Foundry Co.....	26.30	26.30	26.30	26.30	26.30	26.30
Standard Cast Iron Pipe & Foundry Co...	31.08	26.08	25.08	25.08	25.08	25.08
Lynchburg Foundry Co.....	29.95	26.40	25.40	25.40	25.40	25.20
Camden Iron Works.....	33.60	28.50	26.25	26.25	26.25	25.50

Proposals for furnishing two motor trucks without bodies.

[Opened July 27, 1910.]

Bidders.	Price for two chassis and motors (each).	Price for providing trucks with magnetos (each).
Studebaker Bros. Co.....	\$350.00	.....
Josephus Wells.....	1,225.00	.....
Imperial Motor Co.....	2,187.46	.....

Proposals for sinking deep wells, Occoquan Workhouse site.

[Opened Aug. 8, 1910.]

Bidders.	Price for one well (bid No. 1).				
	Through sand and gravel (per foot).	Through earth or clay (per foot).	Through soft rock (per foot).	Through hard rock (per foot).	Drive pipe or casing (per foot).
Columbia Pump & Well Co.....	{ ¹ \$4.50 }	\$3.00	\$3.75	\$5.50	\$1.00
Edward Christman.....	3.00	3.00	5.00	7.60	.04½
John B. Rulon ²	4.35	2.50	3.00	4.75	.90
	2.75				
Price for three wells (bid No. 2).					
Columbia Pump & Well Co.....	{ ¹ \$4.00 }	\$2.75	\$3.50	\$5.00	\$1.00
Edward Christman.....	2.75	2.70	3.90	6.95	.04½
John B. Rulon ²	3.85	2.25	2.75	4.50	.90
	2.50				

¹ Complete.² Received after opening.*Proposals for razing and removing buildings on site of 12-room school building, on south-east corner of Eighth and T Streets NW., being Nos. 1823 to 1849 Eighth Street NW.*

[Opened Aug. 8, 1910.]

Bidders.	Number of linear feet fence will build for material.	Alternate proposal.
Edward J. De Lacy.....	550	
T. Edward Clark.....		\$1,250
Arthur R. Thompson.....		1,750
John Wignall (No. 1).....		2,100
John Wignall (No. 2).....	¹ 14,000	

¹ No excavating.*Proposals for wading pools at playgrounds.*

[Opened Aug. 18.]

Bidders.	For work complete.	For pool at Georgetown.		For Virginia Avenue pool.	
		Time.	Price.	Time.	Price.
R. E. Boiseau.....	\$1,500.00	12 days..	\$700.00	15 days..	\$800.00
Lake Stone Co.....			590.00	10 days..	650.00
Southern Paving Co.....	1,331.08		680.59	15 days..	650.49
R. J. Beall Construction Co.....			649.00	12 days..	789.00

Proposals for razing and removing buildings on the site of the McKinley Manual Training School, Seventh and Marion Streets NW.

[Opened Aug. 19.]

Bidders.	For work complete.	Time.
Chas. W. King.....	<i>Cubic yards.</i> 1,200	30 days.
Arthur R. Thompson.....	750	60 days.
T. Edward Clark.....	1,110	.....
E. J. DeLacy.....	511	.....
John Wignall.....	625	30 days.

Proposals for grading Langdon School grounds.

[Opened Aug. 19.]

Geo. Hyman.....	\$975
R. J. Beall Construction Co.....	1,113

1 69 cents per yard.

Proposals for furnishing the surface division, engineer department, a 7 or 8 ton road roller.

[Opened Aug. 24.]

Bidders.	Weight.	Power.	Type.	Price.
Austin Western Co. (Ltd.).....	{7-ton..... 8-ton.....}	Gasoline..	3-wheel....	{ \$2,350.00 2,450.00
Iroquois Iron Works.....	{8-ton..... 19,700 pounds.....}		Tandem..	{ 2,152.70 2,163.00
Kelly-Springfield Roller Co.....	8-ton.....		Tandem..	{ 2,190.00 2,225.00 2,235.00 2,250.00

Proposals for sinking deep wells in the District of Columbia.

[Opened Sept. 1, 1910.]

Bidders.	Well No. 1.				Well No. 2.			
	First 100 feet.	Second 100 feet.	Third 100 feet.	Fourth 100 feet.	First 100 feet.	Second 100 feet.	Third 100 feet.	Fourth 100 feet.
Columbia Pump & Well Co.....	\$1.75	\$1.75	\$2.50	\$3.00	\$1.75	\$1.75	\$2.50	\$3.00
Edward Christman..	3.50	3.00	3.00	3.00	3.40	2.75	2.70	2.50
Geary A. Fisher.....	2.25	2.62½	3.50	4.50	2.25	2.62½	3.50	4.50

Bidders.	Well No. 3.				Well No. 4.				For each linear foot over 400 feet.	For drive pipe placed in well, per lin- ear foot.
	First 100 feet.	Second 100 feet.	Third 100 feet.	Fourth 100 feet.	First 100 feet.	Second 100 feet.	Third 100 feet.	Fourth 100 feet.		
Columbia Pump & Well Co.....	\$1.75	\$1.75	\$2.50	\$3.00	\$1.75	\$1.75	\$2.50	\$3.00	\$3.75	\$0.85
Edward Christman..	2.50	2.25	2.25	2.60	2.50	2.00	2.00	2.60	2.75	.50
Geary A. Fisher.....	2.25	2.62½	3.50	4.50	2.25	2.62½	3.50	4.50	.....	.....

Proposals for furnishing underground signal and telephone cable.

[Opened Sept. 7, 1910.]

Bidders.	Price for 5,000 feet 3-pair combination cable, rubber insulation (per foot).	Price for 15,000 feet 8-pair combination cable, paper insulation (per foot).	Price for 5,000 feet 12-pair combination cable, paper insulation (per foot).	Price for 7,000 feet 55-pair combination cable, paper insulation (per foot).
Western Electric Co.....		\$0.10 ¹⁵ / ₁₆	\$0.13 ¹⁵ / ₁₆	\$0.36 ¹⁵ / ₁₆
Standard Underground Cable Co.....	\$0.12 ¹⁵ / ₁₆	.11 ¹⁵ / ₁₆	.14 ¹⁵ / ₁₆	.37 ¹⁵ / ₁₆
Waterbury Co.....	.14	.13	.16	.40
National Electrical Supply Co. ¹.....	.16 ¹⁵ / ₁₆			

¹ Informal; no deposit.*Proposals for doing plumbing work at No. 935 B Street NW.*

[Opened Nov. 7, 1910.]

Coberth, Hanes & White Co.....	\$9.00
The E. F. Brooks Co.....	8.58

Proposals for furnishing sheet-steel pipe.

[Opened Oct. 26, 1910.]

Bidders.	Furnish and deliver f. o. b. cars Washington, D. C., 1,218 feet of 30-inch steel pipe, at—
The East Jersey Pipe Co.....	\$5,420.10
A. D. Granger Co.....	5,678.00

Proposals for furnishing fire hydrants to the District of Columbia.

[Opened Sept. 22, 1910.]

	Price per hydrant.
The A. P. Smith Manufacturing Co.....	\$32.90
The Glamorgan Pipe & Foundry Co.....	32.70

Proposals for furnishing and erecting a complete electric-lighting plant for the temporary buildings of the workhouse, located at Occoquan, Fairfax County, Va.

[Opened Nov. 12, 1910.]

Bidders.	Plant complete.	Two plants complete.
J. Newman Perry.....	\$6,957.86	
Carroll Electric Co.....	3,750.00	\$7,300.00
National Electrical Supply Co.....	3,430.00	7,410.00

Proposals for furnishing cast-iron water pipe and water-pipe specials.

[Opened Nov. 9, 1910.]

Bidders.	No. 1. 8.5 tons 10- inch pipe shell 0.90 inch thick.	No. 2. 499.6 tons 30- inch pipe shell 1.01 inches thick.	No. 3. 22.3 tons 16 and 30 inch water-pipe specials, New Eng- land Water Works Association specifica- tions.	No. 3b. Same as above, us- ing own (standard) patterns, specifica- tions, etc.
United States Cast Iron Pipe & Foundry Co.....	\$23.47	\$23.42		\$54.30
Camden Iron Works.....	23.17	22.17	\$53.50	
Standard Cast Iron Pipe & Foundry Co.....	26.75	26.75	52.80	
Weatherly Foundry & Machine Co.....			70.12	
Lynchburg Foundry Co.....	23.18	23.18		52.86

Proposals for constructing walls and gates at the District property yard, at Seventh and K Streets NE.

[Opened Dec. 10, 1910.]

Bidders.	Work complete.	Time.
Jos. H. Gibbons.....	\$1,029.00	75 working days.
Benj. B. Knell.....	919.00	30 days.
Harry G. Wilson.....	987.00	Do.
Wm. Rothwell & Son.....	841.00	Do.

Proposals for furnishing and operating single-chair bootblack stands in convenience stations.

[Opened Dec. 10, 1910.]

Bidders.	For privi- lege at all three stations.	For privi- lege at sta- tion at Sev- enth Street and Penn- sylvania Avenue.	For privi- lege at sta- tion at Thirteenth- and-a-half Street and Pennsylvania Avenue.	For privi- lege at sta- tion at Ninth Street and New York Avenue.
Samuel N. Murray.....				\$6 per month; \$1.50 per week.
John W. Hammond.....		\$1.50 per week.		

Proposals for crushing stone.

[Opened Dec. 17, 1910.]

Per cubic yard.

The Cranford Paving Co.....	\$0.83
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Proposals for the construction of a concrete culvert in Kearney Street NE., between Fourteenth and Fifteenth Streets.

[Opened Dec. 23, 1910.]

Warren F. Brenizer Co.....	\$390
E. G. Gummel.....	375
Allan T. Howison ¹	570

¹ Informal; deposit not certified.

Proposals for furnishing and placing all pipe and valve work, conduits, engines, pumps, pipe covering, etc., to form a proper and complete steam connection from boilers to the M Street High, Simmons, and Douglass school buildings, located between M and Pierce, First Street and New Jersey Avenue NW.

[Opened Jan. 10, 1911.]

Bidders.	Price complete, specified time.	Time less than specified.	Alternate A.
Evans-Almirall Co	\$10,699.23	8 months.....	—\$289.75
Dowd Bros.....	9,775.00	1 month if can work in school hours.....	— 350.00
Jno. W. Danforth Co.....	12,200.00	6 months.....	— 400.00
Crook, Kries & Co.....	16,377.00	do.....	— 125.00
Biggs Heating Co.....	12,468.00	7 months.....	— 330.00
York Engineering Co.....	9,146.00	6 months.....	— 350.00

Additional alternates.—York Engineering Co.: B, —\$528.50; C, —\$300; D, —\$728; E, —\$160.

Proposals for constructing a boiler house and installing two boilers, each of 250 horsepower, with stack and breeching, forming central heating plant, M Street High, Simmons, and Douglass schools, located between M and Pierce, First Street and New Jersey Avenue NW.

[Opened Jan. 10, 1911.]

Bidders.	Price complete, specified time.	Time less than specified.	Alternate A.	Alternate B.
Geo. E. Wyne.....	\$23,075.00	6 months..	—\$600.00	—\$2,100.00
Evans-Almerall Co.....	21,970.50	.....	.....	— 2,225.00
Davis Construction Co.....	22,873.00	6 months..	— 400.00	— 2,500.00
Boyle-Robertson Construction Co.....	19,818.00	do.....	— 100.00	— 2,400.00
York Engineering Co.....	24,778.00	do.....	— 150.00	— 2,293.00
Biggs Heating Co.....	27,688.00	7 months..	— 500.00	— 2,275.00
Jno. W. Danforth.....	22,400.00	6 months..	— 100.00	— 2,400.00
Upton-Smoot Construction Co.....	22,296.00	do.....	— 300.00	— 2,750.00
Hoge & Luebker Co.....	25,765.00	.....	— 135.00	— 3,400.00
Randolph L. Jennings.....	¹ 19,710.00	.....	— 490.00	+ 2,100.00

¹ Does not include stokers.

Additional alternates.—York Engineering Co.: C, —\$311; D, —\$1,341; E, —\$3,230; F¹, —\$2,054; F², —\$1,802; G¹, +\$553; G², +\$486; G³, +\$425.

Biggs Heating Co.: Add \$250 to make smokestack self-supporting.

Jno. W. Danforth: Will construct complete and make connections \$28,900, except as noted in letter.

Upton-Smoot Construction Co.: Substitute waterproofing, deduct \$600.

Proposals for strengthening and stiffening of Calvert Street Bridge.

[Opened Jan. 23, 1911.]

Bidders.	Proposal A.	Time for completion.	Proposal B 1.	Time for completion.	Proposal B 2.	Time for completion.
The Snare & Triest Co.....	\$20,980	4½ months.	\$16,200	4½ months.	\$4,780	4½ months
Penn Bridge Co.....	19,789	6 months.	16,280	6 months.	3,509	6 months.
Baltimore Bridge Co.....	23,250	7 months.	19,280	6 months.	3,970	7 months.
Pierson & Goodrich.....	28,890	4 months.	21,940	4 months.	6,950	4 months.
Oscar Daniels Co.....	22,514	5 months.	18,000	5 months.	4,900	5 months.
McClintic-Marshall Construction Co.....	23,400	4 months.	17,875	4 months.	6,450	3 months.

Proposals for furnishing and erecting five horizontal oil tanks and connections.

[Opened Feb. 27, 1911.]

Bidders.	Work, complete.
The Codd Tank & Specialty Co.....	\$2,250
S. F. Bowser & Co. (Inc.).....	2,980
G. W. Fosberg—No. 1.....	2,960
No. 2.....	2,340
Des Moines Bridge & Iron Co.....	2,300
Stacy-Schmidt Manufacturing Co.....	2,660
E. J. Codd Co.....	1,880
W. D. Priscoe.....	2,250
The Warren City Tank & Boiler Co.....	2,350

Proposals for furnishing additional ground in the vicinity of the Corcoran School Building, approximately 7,200 square feet.

[Opened Mar. 15, 1911.]

Bidders.	Description of land.	Price.
Joseph I. Weller	The 30 feet front next to the south 31 feet front on Twenty-eighth Street NW., of lot No. 14, by the depth thereof in square No. 1214, formerly square No. 44, together with improvements thereon, consisting of two brick dwellings known as Nos. 1203 and 1205 Twenty-eighth Street NW.	\$5,500
J. D. Sullivan ¹	Part of lot 14, being the 30 feet front on M Street by 31 feet on Twenty-eighth Street on which is a brick store on whole lot. Also 15 feet adjoining the Corcoran School on the south, improved by a frame store.	5,500 1,500
	And the north 56 feet front of lot 18, by a depth of about 60 feet, improved by two frames and a brick.	5,500

¹ Mr. Sullivan's bid was informal, as it was not accompanied by a deposit of \$100, as required in advertisement.

Proposals for furnishing a site for a New M Street High School, approximately 60,000 square feet, to be located north of M Street north and west of North Capitol Street.

[Opened Mar. 15, 1911.]

Bidders.	Description of land.	Price.
Joseph I. Weller	All that parcel of land as shown on the accompanying plat, same being part of square 554, fronting on the north 201 feet on O Street, on the east 400 feet on First Street west, on the south 150.17 feet on N Street, containing in all 68,738.25 square feet.	\$60,000
L. S. Lipscomb	Lot 61, square 555, being the northwest corner of New York Avenue and First Street NW., fronting 167.67 feet on New York Avenue, 261.92 feet on First Street, and 206.33 on N Street, and containing 59,664 square feet.	59,664
Charlotte E. Bates	Lots 8, 9, and 10, square 619, situated at the intersection of First and M Streets and New York Avenue NW.	60,000

Proposals for furnishing site for the new Central High School, approximately 400,000 square feet, to be located north of Q Street north and west of Tenth Street west.

[Opened Mar. 15, 1911.]

Bidders.	Description of land.	Price.
Joseph I. Weller	All of square 2870, formerly block No. 28, in Columbia Heights, bounded on the north 685.60 feet on Clifton Street, on the east 538.90 feet on Eleventh Street, on the south 603.29 feet on Florida Avenue, and on the west 626.32 feet on Thirteenth Street, containing in all 390,637 square feet, more or less.	\$300,000
L. S. Lipscomb	Parts of squares 2590 and 2591, fronts 400 feet on Mount Pleasant Street, at its intersection with Sixteenth Street and Columbia Road, and 855 feet on proposed street authorized by last session of Congress, containing 280,000 square feet.	210,000

Proposals for furnishing a site for a manual training school in the twelfth division, to be located west of First Street NE., south of P Street NW., east of Fourth Street NW., and north of K Street NW., containing approximately 15,000 square feet.

[Opened Mar. 25, 1911.]

Bidders.	Description of land.	Price.	Remarks.
Joseph I. Weller.....	All of lots numbered 31 to 38, inclusive, square 616, with improvements, containing in all 13,544 square feet, more or less.	\$16,700	Deposit bond \$100.
Burr N. Edwards.....	All of lots 7 and 8 in square 554, located on the north side of N Street, between First and Third Streets NW., fronting on N Street, 111.17 feet by a depth of 185 feet to a 30-foot alley in the rear, and a 15-foot alley on the east, containing in all 20,566 square feet.	15,000	Do.
Clifford A. Borden.....	All of lots 32 to 38 inclusive, square 619, having a frontage on New York Avenue, between North Capitol and First Streets NW., of 140 feet by a depth of 101.53, to a 15-foot alley, containing 14,217 square feet, more or less.	14,500	Deposit certified check for \$100.
L. S. Lipscomb & Co....	The west 16 feet of lot 3, and all of lots 4 and 5, in square 553, said lots fronting 130 feet on O Street by a depth of 135 feet to alley, containing 17,550 square feet, with improvements.	18,750	Do.
W. F. Nash.....	100 feet front by 150 feet deep, from lots 9 and 11, square 673.	18,750	Bid informal, as check for \$100, accompanying was not certified.
Allan E. Walker & Co..	Part of lot 17, square 620, fronting 69.25 feet on M Street, by a depth of 180 feet, with side and rear alley, containing 12,482 square feet.	12,482	Bid informal, as it was not accompanied by a deposit of \$100, as required.

Proposals for furnishing and setting up complete two 100-horsepower boilers for the female reformatory at Occoquan, Va.

[Opened Apr. 7, 1911.]

Bidders.	Price for work complete.	Time.
Erie City Iron Works.....	\$3,150	65 days.
Casey-Hedges Co.....	3,925	Specified time.
York Engineering Co. ¹	3,800	110 days.
J. E. Hurley.....	3,285	By July 1, 1911.
Ames Iron Works.....	2,727	60 days.

¹ Gem City, \$3,150.

Proposals for furnishing and installing boiler and connections complete at the heating plant of the Industrial Home School, Wisconsin Avenue and Observatory Lane, near Tenleytown, D. C.

[Opened Apr. 7, 1911.]

Bidders.	Price for work complete.	Time.
Standard Engineering Co.....	\$824.00	40 work days.
John B. Adt.....	909.50	Specified time.
J. E. Hurley.....	760.00	60 days.

Proposals for reboring cylinders of gas engines.

[Opened Apr. 15, 1911.]

Bidders.	One 5-horsepower cylinder.	One 7-horsepower cylinder.
G. W. Forsberg.....	\$18.50	\$22.50
Allen Mitchell & Co.....	19.00	23.00
J. E. Hurley.....	18.90	22.80
District Machine Works.....	25.00	30.00

Proposals for doing plumbing work at 607 A Street SE.

[Opened May 1, 1911.]

Warner & Rittenhouse.....	\$120
Coberth, Hanes & White Co.....	60

Proposals for making down-spout connection at Nos. 941-943 Hughes Court NW.

[Opened May 13, 1911.]

Samuel Artz.....	\$14.75
Coberth, Hanes & White Co.....	17.50
Wm. Rothwell & Son.....	18.00
Skinker & Garrett.....	30.00
Jas. T. Frawley.....	13.50

Proposals for grading and leveling off lots Nos. 51 to 55, inclusive, square 5663, at the northeast corner of Thirtieth and R Streets SE.

[Opened May 31, 1911.]

Bidder.	Price complete.	Price per cubic yard.
Charles W. Cooke.....		\$0.30
William F. Cush.....		.37
George Hyman.....	\$1,506.56	.32

Proposals for making down-spout connection at 1014 Sixteenth Street NW.

[Opened May 26, 1911.]

Coberth, Hanes & White Co.....	\$17.00
Lauxman & Sincell.....	18.00
Maurice J. Colbert.....	14.00
Jas. T. Frawley.....	19.50

Proposals for leasing wharf frontage at the foot of Eleventh Street SE.

[Opened June 15, 1911.]

	Price per foot.
William A. Mills, commodore of the Eastern Power-Boat Club.....	\$1.75
Wm. E. Wood.....	1.55

Proposals for making sewer and water connections at 1220 Twenty-third Street NW.

[Opened June 14, 1911.]

Wm. Rothwell & Son.....	\$164
Coberth, Hanes & White Co.....	157

Proposals for making sewer and water connections at 1540 Levis Street NE.

[Opened June 14, 1911.]

Wm. Rothwell & Son.....	\$183
Coberth, Hanes & White Co.....	162

Proposals for furnishing and installing electric lighting plant for workhouse at Occoquan, Va.

[Opened June 9, 1911.]

Carroll Electric Co.....	\$6,790
National Electrical Supply Co.....	9,261

Proposals for making sewer and water connections at Nos. 12 and 14 Nichols Avenue SE.

[Opened June 27, 1911.]

Coberth, Hanes & White Co.....	\$318
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STATEMENT OF CONTRACTS.

Contracts entered into by the District of Columbia during the fiscal year 1911.

1. HIGHWAY IMPROVEMENTS.

No.	Name of contractor.	Nature of contract.
4634	Cranford Paving Co.....	Sheet asphalt pavements, 1911.
4645	The Washington Asphalt Block & Tile Co.....	Asphalt block pavements, 1911.
4661	George Hyman.....	Grading Everts Street NE., Twentieth to Twenty-second Streets.
4703	The Warren F. Brenizer Co.....	Grading Rhode Island Avenue NE.
4704	Harper & Voigt.....	Grading Longfellow Street.
4705	George Hyman.....	Grading Macomb Street.
4706	Edward G. Gummel.....	Grading and improving streets, 1911.
4717	George Hyman.....	Grading Langdon School grounds.
4749	Edward G. Gummel.....	Grading Kearney Street NE., Thirteenth to Eighteenth Streets.
4769	Penn Bridge Co.....	Strengthening Calvert Street Bridge.
4794	The Cranford Paving Co.....	Resurfacing, repairing, etc., asphalt and coal tar pavements, 1911-1913.
4814	.....do.....	Sheet asphalt pavements, 1912.
4817	The Washington Asphalt Block & Tile Co.....	Asphalt block pavements, 1912.
4903	The Cranford Paving Co.....	Bituminous macadam pavements.
4933	The Warren F. Brenizer Co.....	Cement sidewalks, 1912.

2. SEWER CONSTRUCTION.

No.	Name of contractor.	Nature of contract.
4712	The Warren F. Brenizer Co.....	Sewers, vicinity of Brightwood.
4718	George Hyman.....	Sewers, vicinity of Cleveland Park.
4728	The Warren F. Brenizer Co.....	Flney Branch trunk sewer.
4754	.....do.....	Sewer, Florida Avenue NW., Eighth to Ninth.
4755	.....do.....	Sewers, vicinity of Tenleytown.
4756	George Hyman.....	Sewers, vicinity of Bureau of Engraving and Printing.
4757	.....do.....	Sewers, vicinity of Langdon.
4758	.....do.....	Sewers, vicinity of Anacostia.
4759	The Warren F. Brenizer Co.....	Reconstructing sewers, Rock Creek Valley, Pennsylvania Avenue to M Street.
4761	Edward G. Gummel.....	Sewers, valley of Rock Creek, P Street to Massachusetts Avenue.
4772	The Warren F. Brenizer Co.....	Georgia Avenue trunk sewer.
4773	.....do.....	Sewers, vicinity of Potomac Heights.
4785	.....do.....	Sewer, Fifteenth Street NW., New York Avenue to I Street.
4805	.....do.....	Sewers, vicinity of Cleveland Park.
4810	George Hyman.....	Sewer, Twentieth Street NE., Monroe Street to Bunker Hill Road.
4811	.....do.....	Sewer, First Street SE., O Street to Anacostia River.
4820	The Warren F. Brenizer Co.....	Sewer, First Street SE., P to N Streets.
4858	.....do.....	Sewer, Fifteenth Street, Pennsylvania Avenue to G Street.
4859	George Hyman.....	Sewer, H Street NW., Fourteenth to Fifteenth.
4870	James A. Coyle.....	Sewers, vicinity of Brookland.
4873	The Warren F. Brenizer Co.....	Sewer, valley of Rock Creek, above Military Road.
4874	.....do.....	Sewer, Nineteenth Street NE., C to D Street.
4875	.....do.....	Sewers, vicinity of Tenleytown.
4876	.....do.....	Sewer, Macomb Street NW. between Connecticut Avenue and Thirty-fourth Street.
4877	.....do.....	Sewer, B Street between Twenty-first Street and Potomac River.
4878	.....do.....	Sewer, B Street between Twenty-first and Nineteenth Streets.

Contracts entered into by the District of Columbia during the fiscal year 1911—Continued.

3. MATERIAL AND HAULING.

No.	Name of contractor.	Nature of contract.
4631	C. F. Thomas & Son.....	Red sewer brick.
4672	Hersey Manufacturing Co.....	Water meters.
4690	Glamorgan Pipe & Foundry Co.....	Cast-iron water pipe.
4693	Standard Cast Iron Pipe & Foundry Co.....	Water-pipe specials.
4738	A. P. Smith Manufacturing Co.....	Fire hydrants.
4743	The East Jersey Pipe Co.....	30-inch steel water pipe.
4744	Lynchburg Foundry Co.....	Cast-iron water pipe and specials.
4786	The East Jersey Pipe Co.....	24-inch steel water pipe.
4797	Glauber Brass Manufacturing Co.....	Corporation cocks.
4798	Hays Manufacturing Co.....	Curb and corporation cocks.
4799	Standard Cast Iron Pipe & Foundry Co.....	Cast-iron water-pipe specials.
4803	United States Cast Iron Pipe & Foundry Co.....	Cast-iron water pipe.
4817	The Washington Asphalt Block & Tile Co.....	Asphalt paving block.
4821	Neptune Meter Co.....	Water meters.
4832	McClay Engineering Co.....	Lamp-posts.
4862	George B. Mullin.....	Hauling broken stone and screenings.
4863	Lewis E. Smoot.....	Sand and gravel.
4879	The Washington Asphalt Block & Tile Co.....	Furnishing asphalt block.
4882	Dietrich Bros.....	Miscellaneous castings.
4887	Lynchburg Foundry Co.....	Do.
4899	Allegheny Valley Brick Co.....	Sewer invert brick.
4900	North Carolina Granite Corporation.....	Curbing.
4902	American Sewer Pipe Co.....	Terra cotta sewer pipe.
4905	Baltimore Clay Works Co.....	Vitrified paving block.
4908	Fred J. White.....	Miscellaneous castings.
4924	Glamorgan Pipe & Foundry Co.....	Fire hydrants.
4927	Richard W. Mann.....	Hauling for schools.
4930	Security Cement & Lime Co.....	Portland cement.
4929	Frederick Brick Works.....	Red sewer brick.

4. BUILDING AND BUILDING REPAIRS.

No.	Name of contractor.	Nature of contract.
4639	Samuel A. Gregory.....	Repairing furnaces in public schools.
4700	S. S. Shedd & Bro. Co.....	Plumbing at Hilton and Anthony Bowen school buildings.
4752	Gormley-Poynton Co.....	Extension to McKinley Manual Training School.
4763	Boyle-Robertson Construction Co.....	Boiler house, central heating plant.
4767	Allan T. Howison.....	Chemical engine house, Randle Highlands.
4768	The Davis Construction Co.....	Library, Takoma Park, construction.
4770	Randolph L. Jennings & Co.....	Garage and lodge, Reno, D. C.
4771	George E. Wyne.....	School building No. 165, Eighth and T Streets, constructing.
4776	Skinker & Garrett.....	Addition to Western High School.
4778	Hoge & Luebker Co. (Inc.).....	School building on Farragut Street NW, between Thirteenth and Fourteenth Streets.
4779	Allan T. Howison.....	Ivy City School, No. 167.
4780	Thomas H. Melton.....	Manual Training School, Wisconsin Avenue and Thirty-third Street.
4782	William E. Mooney.....	Engine house No. 24, constructing.
4790	Skinker & Garrett.....	Shelter and storage buildings at Rosedale and Georgetown playgrounds.
4795	do.....	Engine house No. 2, coal vault.
4796	do.....	Mortuary building, Tuberculosis Hospital.
4800	Allan T. Howison.....	Cardozo Manual Training School, construction of
4802	Murray Bros.....	Pebble dashing, Chevy Chase School.
4804	Wm. Rothwell & Son.....	Extension to cement warehouse, District of Columbia.
4807	Warner & Rittenhouse.....	Plumbing, Central High School.
4832	Coberth, Hanes & White Co.....	Plumbing, Business High School.
4867	Samuel A. Gregory.....	Repairing furnaces, etc., in schools.
4889	S. S. Shedd & Bro. Co.....	Plumbing, Congress Heights School.
4890	do.....	Plumbing, Fort Reno School.
4891	do.....	Plumbing, Grant School.
4917	Wm. Rothwell & Son.....	Plumbing, Henry School.

Contracts entered into by the District of Columbia during the fiscal year 1911—Continued.

5. GENERAL SUPPLIES.

No.	Name of contractor.	Nature of contract.
4617	D. Appleton & Co.	Schoolbooks.
4619	Wm. A. H. Church	Lumber.
4621	Blue Front Market Co.	Groceries and meats.
4622	J. Edward Chapman	Fuel.
4623	J. Ross Collins	Hardware.
4624	Prang Educational Co.	Stationery.
4625	R. Carter Ballantyne	Do.
4626	National Mortar Co.	Lime and mortar.
4627	Geo. M. Oyster	Milk and cream.
4628	Eagle Pencil Co.	Stationery.
4629	W. M. Galt & Co.	Flour and forage.
4630	Cuyler & Mohler	Plumbing material.
4632	R. P. Clarke Co.	Stationery, etc.
4633	Corby Bros.	Bread.
4635	J. Maury Dove Co.	Fuel.
4636	C. E. Gould	Stationery.
4637	Chas. F. Sudwarth	Printing.
4638	Barber & Ross	Hardware
4640	Lutz & Co.	Hardware plumbing material, and saddlery.
4641	Julius Lansburgh Furniture & Carpet Co.	Furniture.
4642	Chas. G. Stott & Co.	Stationery.
4643	Wm. Hahn & Co.	Boots and shoes.
4644	L. G. Kelly Printing Co.	Printing.
4652	Wm. H. Horstman Co.	Flags.
4653	Becker's Leather Goods Co.	Saddlery.
4654	Lansburgh & Bro.	Furniture and dry goods.
4655	Johnson Bros.	Fuel.
4657	B. F. Bond Paper Co. of Baltimore	Stationery.
4658	The Dulany-Vernay Co.	Kindergarten supplies.
4646	Manhattan Coffee Mills	Groceries.
4647	William L. King	Saddlery.
4648	R. P. Andrews Paper Co.	Stationery.
4649	Ward W. Griffith	Fuel.
4650	Mackall Bros.	Drugs.
4660	James B. Lambie Co.	Furniture, hardware, plumbing material, etc.
4662	The Hoge & McDowell Co.	Forage.
4663	Schwarzschild & Sulzberger Co.	Groceries.
4664	Washington Tobacco Co.	Do.
4665	Lewis Flemer	Drugs.
4666	Somerset R. Waters	Groceries and meats.
4667	Z. D. Gilman	Drugs.
4668	Dulin & Martin	Stationery, furniture, and hardware.
4669	Wm. L. Swayze	Stationery.
4671	Harry Kaufman	Boots and shoes and dry goods.
4674	W. & J. Sloane	Furniture.
4675	Western Electric Co.	Electrical supplies.
4676	Standard Oil Co.	Oils, etc.
4677	Thos. Somerville Co.	Hardware and plumbing material.
4678	Chas. H. Weser	Meats.
4679	Lewis Hopfenmaier	Groceries.
4680	Fred A. Schmidt	Stationery, paints, etc.
4681	The Robbins & Myers Co.	Electrical supplies.
4682	Thomas W. Smith	Lumber.
4683	W. T. Gallher & Bro. (Inc.)	Do.
4684	Remington Typewriter Co.	Stationery.
4686	A. G. Spalding & Bros.	Athletic goods.
4687	Miller-Clagett & Co.	Groceries.
4688	E. J. Murphy Co. (Inc.)	Stationery, paints, oils, etc.
4689	National Electrical Supply Co.	Electrical supplies.
4692	Crane Co.	Plumbing materials.
4694	George F. Muth & Co.	Stationery, paints, etc.
4695	Wm. W. Conner	Stationery, paints, schoolbooks, etc.
4696	James C. Martin	Schoolbooks.
4701	Swift & Co.	Groceries.
4709	Frank Hume (Inc.)	Do.
4711	Mathers-Lamm Paper Co.	Stationery.
4715	Chesapeake Supply Co.	Plumbing material.
4716	John W. Hunt & Co.	Paints, etc.
4719	Hugh Reilly Co.	Do.
4720	James F. Oyster	Groceries.
4721	Henry Evans (Inc.)	Drugs.
4722	Carroll Electric Co.	Electrical supplies.
4727	W. B. Moses & Sons (Inc.)	Furniture.
4730	George E. Howard	Printing.
4823	Charles F. Sudwarth	Do.
4826	L. G. Kelly Printing Co.	Do.
4827	William A. H. Church	Lumber.
4728	Leonard P. Steuart	Ice.
4829	Charles Hvass & Co.	Hardware.
4833	American Ice Co.	Ice.
4836	C. M. Wolf & Co. (Inc.)	Saddlery.
4837	Thomas W. Smith	Lumber.

Contracts entered into by the District of Columbia during the fiscal year 1911—Continued.

5. GENERAL SUPPLIES—Continued.

No.	Name of contractor.	Nature of contract.
4840	W. T. Galliher & Bro. (Inc.)	Lumber.
4842	Hoover & Denham	Meats.
4844	Wm. H. Horstman & Co.	Flags.
4845	William L. King	Saddlery.
4848	Wm. Hahn & Co.	Boots and shoes.
4850	A. G. Spalding & Bros.	Athletic goods.
4853	Potomac Electric Power Co.	Electrical supplies.
4857	McKee Surgical Instrument Co.	Drugs.
4860	Somerset R. Waters	Groceries.
4861	J. E. Dyer	Do.
4865	National Electrical Supply Co.	Electrical supplies.
4866	Independent Electrical Supply Co.	Do.
4868	Washington Tobacco Co.	Groceries (tobacco).
4869	Manhattan Coffee Mills	Groceries.
4872	Z. D. Gilman	Drugs.
4880	Corby Bros.	Bread.
4881	Frank Hume (Inc.)	Groceries.
4885	Becker's Leather Goods Co.	Saddlery.
4888	Eagle Pencil Co.	Stationery.
4898	Lewis Flemer	Drugs.
4892	Washington Wood Working Co.	Lumber.
4893	Albert L. Johnson	Hardware.
4894	James F. Oyster	Groceries.
4895	Swift & Co.	Groceries and meats.
4896	J. Edward Chapman	Fuel.
4901	Chas. T. Robinson	Hardware.
4904	Standard Oil Co.	Oils, etc.
4906	J. A. Whitfield Co.	Groceries and meats.
4907	Cuyler & Mohler	Plumbing material.
4911	Edwards & Zanner Co.	Furniture (clocks).
4912	S. A. Ripple & Bro.	Hardware.
4913	Simms-Harrison Co.	Fuel.
4921	Hammar Bros. White Lead Co.	Paints, etc.
4923	Armour & Co.	Groceries, drugs, meats, etc.
4928	Remington Typewriter Co.	Stationery.
4931	W. M. Galt & Co.	Forage.
4935	Johnson Bros.	Fuel.
4936	Hugh Reilly Co.	Hardware, paints, etc.

6. MISCELLANEOUS.

4618	Wm. H. Gaskins	Purchase of barrels, Washington Asylum.
4620	American Street Lighting Co.	Naphtha lighting, 1911-12.
4651	American La France Fire Engine Co.	Remodeling truck for fire department.
4659	The Cook & Stoddard Co.	2 motor trucks for sewer division.
4673	Ducker Co.	Portable comfort stations, playgrounds.
4685	Kensington Engine Works Co.	Disinfecting chamber for health office.
4691	Carter Motor Car Corporation	Touring car, fire department.
4697	John B. Rulon	Wells, Occoquan, Va.
4698	John E. Hurley	Boilers at Summer School, No. 19.
4699	American Saw Mill Machinery Co.	Sawmill outfit, workhouse, District of Columbia.
4702	Charles W. King	Razing buildings on site of addition to McKinley Manuel Training School and grading said site.
4707	Taunton-New Bedford Copper Co.	Switchboards, Western High School.
4708	National Electrical Supply Co.	Electric wiring, Franklin School.
4710	Koreshan Unity-Cooperative	Partition work, District Building.
4713	Biggs Heating Co.	Boiler, Columbia Hospital for Women.
4714	Keystone Furnace Co.	Motor and blower, Chevy Chase School.
4723	Columbia Pump & Well Co.	Drilling wells, Good Hope and Kenilworth schools.
4724	Lake Stone Co.	Wading pools, playgrounds.
4725	Lewis Hopfenmaier	Purchase of bones.
4726	Edward Christman	Wells, Benning School and at Benning and Anacostia Roads.
4729	Kelly-Springfield Road Roller Co.	Steam roller.
4731	Studebaker Bros. Co.	2 chassis for water department.
4732	Combination Ladder Co.	Chemical engine.
4733	Western Electric Co.	Signal cable.
4734	Taunton-New Bedford Copper Co.	Switchboards, Business High School.
4735	Standard Underground Cable Co.	Signal cable.
4736	Alfred Courtney	Apparatus for physics laboratories, Western High School.
4737	J. P. Pfeiffer	Refrigerators, Eastern Market.
4739	Derby Desk Co.	Banking fixtures, Business High School.
4740	Combination Ladder Co.	Fire extinguishers for schools.
4741	Western Electric Co.	Signal cable.
4742	Edward Darby & Sons Co. (Inc.)	Lockers, Central High School.
4746	Eureka Fire Hose Manufacturing Co.	Fire hose.
4747	The Gutta Percha & Rubber Manufacturing Co.	Do.
4748	National Electrical Supply Co.	Electric lighting plant, workhouse, Occoquan, Va.

Contracts entered into by the District of Columbia during the fiscal year 1911—Continued.

6. MISCELLANEOUS—Continued.

No.	Name of contractor.	Nature of contract.
4750	R. J. Beall Construction Co.	Grading Strong John Thomson School grounds, cement work, etc.
4751	Kluckhuhn & Bro.	Electric light and bell system, Western High School.
4753	Elmer H. Catlin Co.	Electric and gas fixtures at Western High School.
4760	Van Dorn Iron Works Co.	Book closets for schools.
4762	The O. M. Edwards Co.	File cases, municipal court.
4764	York Engineering Co.	Connections, etc., central heating plant.
4765	Kewaunee Manufacturing Co.	Chemical tables, Business High School.
4766	The Standard Electric Time Co.	Clock and bell system, Western High School.
4774	Waterous Engine Works Co.	Motor-driven fire engine.
4775	E. J. Codd Co.	Oil tanks, various locations.
4777	The Ironworks Co.	Stokers, District Building.
4781	E. M. Freese & Co.	Brickmaking machinery, Occoquan, Va.
4783	Derby Desk Co.	Gun racks, Business High School.
4784	The Standard Electric Time Co.	Clock and bell system, McKinley Manual Training School.
4787	John E. Hurley	Stack for brickmaking plant, Occoquan, Va.
4788	Derby Desk Co.	Drawing cases and tables, Business High School.
4789	John E. Hurley	Boiler, Industrial Home School, Wisconsin Avenue.
4791	Wm. H. Chambers.	Horses for street-cleaning department.
4792	Crane Co.	Steam pipe and fittings for workhouse, Occoquan, Va.
4793	Ames Iron Works	Boilers, workhouse, Occoquan, Va.
4801	Glenn Brown	Sketches, etc., for Q Street Bridge.
4806	J. L. Mott Iron Works	School drinking fountains.
4808	A. P. Smith Manufacturing Co.	Nipples, valves, etc., for water department.
4809	The Texas Co.	Road oil.
4812	Thomas Hampton	Brickkilns, Occoquan, Va.
4813	Indian Refining Co.	Road oil.
4815	Standard Oil Co.	Do.
4816	Standard Oil Co. of New York	Asphalt macadam binder.
4818	P. Mann & Co.	Carts for street-cleaning department.
4819	Wm. H. Chambers.	Horses for street-cleaning department.
4822	Solvay Process Co.	Calcium chloride.
4824	Barrett Manufacturing Co.	Macadam asphalt binder.
4825	do.	Road oil.
4830	Fowler Manufacturing Co.	Laundry work.
4831	John H. Hinrichs	Painting interior District Building.
4834	Miller Bros. Automobile & Supply House	Hire and livery of 3 automobiles for electrical department.
4835	Combination Ladder Co.	Repairing fire engine No. 5.
4838	Columbia Laundry Co. (Inc.)	Laundry work.
4839	Consolidated Sales Co.	Radiators, etc., Occoquan, Va.
4841	Fred C. Butts & Co.	Purchase of waste paper.
4843	Thomas J. Williams	Electrical work, Business High School.
4846	Wm. H. Chambers.	Horses for street-cleaning department.
4847	Ames Iron Works	Engines, McKinley Manual Training School.
4849	Chas. W. Cooke	Grading school site, Randle Highlands.
4851	National Electrical Supply Co.	Electric generators, McKinley Manual Training School.
4854	Carroll Electric Co.	Electric-lighting plant, Occoquan, Va.
4855	Wm. H. Chambers.	Horses for street-cleaning department.
4856	Remington Machine Co.	Ice-making plant, Occoquan, Va.
4864	Gilbert D. Emerson	Binding, etc., Public Library.
4871	Motor Sales Co.	Chassis with motor.
4883	Macbeth-Evans Glass Co.	Glass globes.
4884	Wm. H. Chambers.	Horses for street-cleaning department.
4886	Standard Underground Cable Co.	Submarine cable.
4897	L. Vogelestein & Co.	Pig lead.
4909	American Metal Co.	Do.
4910	Ahrens-Fox Fire Engine Co.	Fire engine, second size.
4914	Fred A. Schmidt	Drawing desks, etc., McKinley Manual Training School.
4915	Eureka Fire Hose Manufacturing Co.	Fire hose.
4916	Globe-Wernicke Co.	Index cases, McKinley Manual Training School.
4918	National Electrical Supply Co.	Lighting fixtures, McKinley Manual Training School.
4919	do.	Switchboards, etc., McKinley Manual Training School.
4920	American Laundry Machinery Co.	Laundry driers, Occoquan, Va.
4922	Thomas Regan	Removing refuse from markets.
4925	Carter Motor Car Corporation	Motor car for fire department.
4926	Library Bureau	Index cases, etc., lost and found bureau, police department.
4932	National Electrical Supply Co.	Traveling crane, McKinley Manual Training School.
4934	Wm. H. Chambers.	Horses for fire department.
4937	Johnson Bros.	Fuel for District Building.

REPORT OF THE WHARF COMMITTEE.

WASHINGTON, *September 18, 1911.*

SIR: The wharf committee has the honor to submit the following report of its operations during the fiscal year ended June 30, 1911.

Accompanying the report is a list of the wharf property now under lease on the Potomac River, Anacostia River, or Eastern Branch, and James Creek Canal.

The total amount received annually from rents is \$16,894.25.

AVAILABLE WATER FRONTAGE.

The actual water frontage in the District of Columbia, with the exception of canals devoted to commerce, is about 2 miles. The total available water frontage, exclusive of canals, which is practicable of commercial development, is about 18 miles; this length, however, includes the frontage set apart for parks and purposes of the United States—about 8 miles.

WHARVES ALONG THE WASHINGTON CHANNEL.

The most important wharf property under lease is that along the Washington Channel. This is a total frontage on the city side of 9,275 linear feet, of which 4,675 feet between the arsenal and the south curb line of N Street south is under the jurisdiction of the United States and under the immediate control of the Chief of Engineers, United States Army, the remaining 4,600 feet, between the south curb line of N Street south and Fourteenth Street SW. is under the jurisdiction of the commissioners, and excepting that used for municipal purposes is under lease to private parties. It is here that the river excursion traffic and the steamboat traffic between Washington, Baltimore, Norfolk, and points along the lower Potomac River is handled. There are also located on this frontage wharves used in the handling of lumber, coal, wood, fish, oysters, and produce.

Along this frontage is also located the harbor police station and dock of the harbor boat, the dock of the fire boat, and the District morgue. Besides the frontage devoted to these municipal uses, the District has a sand and gravel wharf and property yard, and at the upper end it is proposed to locate a dock and railroad connections for the operation of a municipal asphalt plant.

Quite a considerable portion of this frontage is occupied by the fish market. This space was leased March 15, 1903, for a period of five years to William W. Riley, who was entitled to a lease for an additional period of five years, provided the terms of this lease had been complied with. The commissioners decided that he had not fulfilled the condition of his lease, and on its expiration, March 15, 1908, the commissioners notified the lessee to vacate. He refused to do so and obtained an injunction against the commissioners. The legal proceedings under this injunction case are still pending. Testimony has been taken and the court has the matter under advisement. On this wharf are located a large number of frame structures which are not in a sanitary condition by reason of the absence of sewer and water facilities. Under the law the privilege of receiving all fish landed in the District of Columbia is auctioned off, and the law states that they shall be landed at this particular locality. The former lessee of this property was the only bidder, as he had the only wharf available for the purpose. A fish market and particularly a fish market in the capital city of the United States should be a model of sanitation and cleanliness, and the conditions at present surrounding this wharf are anything but clean and wholesome. If the District shall prevail in this litigation and regain possession of this wharf, steps will be taken to materially improve conditions and to provide for the erection of a modern fish market, either by leasing the space under conditions which will provide for the erection of a model fish market and wharf or by recommending to Congress that an appropriation be made for its construction and operation under the superintendent of weights and measures, who has control of all other District markets. There is sufficient space here also for the establishment of a public wharf where those shippers who have no wharfage facilities may land cargoes and pay wharfage and dockage charges. There is a great demand for such a public wharf as, owing to the long-term leases now existing on this frontage, independent shippers have no facilities for landing their goods without making arrangements with private parties holding leases. Considerable improvement has been made in the appearance of the wharf frontage by the construction of new structures, but these are only temporary wooden buildings and should at some time be replaced by a more ornamental construction. When some definite plan of the improvement of the water front of the city of Washington is provided for, such action can be taken.

WHARVES ALONG THE ANACOSTIA RIVER.

This frontage is largely undeveloped, owing to the uncertainty of ownership of the abutting land and riparian rights. Some leases have been made of wharves at the foot of streets and where public streets abutted the river. The sewage pumping station is located along this frontage, and recently an additional frontage has been set aside for the construction of a wharf and yard to handle water transportation between the District of Columbia and the workhouse site at Occoquan, Va. Much of the frontage is, however, claimed by private parties adverse to the rights of the United States and the District of Columbia.

In the last annual report of the wharf committee attention was invited to the report made by Hugh T. Taggart, special counsel to investigate the title of the United States to land along this frontage. This report did not give consideration to the water frontage of the city of Washington, but Mr. Taggart arrived at the following conclusions regarding the title to land in the District of Columbia abutting that portion of the Anacostia River not included in the immediate frontage of the city of Washington:

"1. That the United States, under the Constitution and the cession from Maryland, is vested as sovereign with absolute title and dominion in and over the space between high-water mark on each side of the Anacostia River and comprising the shores and bed of the stream.

"2. That the United States holds such title and dominion in trust for the public purposes of navigation and fishery and for such other purposes as may conduce to the general welfare of the people, as to which Congress, as the representative of the people, is the sole judge.

"3. That as against the United States in the execution of such trusts riparian owners are invested with no rights.

"4. That so long as the Government confines its operations in any scheme of improvement to the space aforesaid it incurs no liability under the fifth amendment to the Constitution, which requires that 'private property shall not be taken for public use without just compensation' and that land reclaimed through such improvement will belong absolutely to the United States.

"The above statement applies to that portion of the river not included in the immediate frontage of the city of Washington upon it. The special features of that frontage require separate consideration."

Since then Mr. Taggart has made a subsequent report, of which the following is a synopsis:

"By the cession from Maryland of territory for the permanent seat of the Government of the United States, title to and dominion over the shores, bed, and waters of the river were vested in the United States, as incident to its powers of government, as the sovereign, and held in trust for the public. Wharves or other obstructions could not be lawfully erected in the space without the authority of Congress.

"The title of the riparian owner ended at the line of high water, where that of the United States began. The only rights to which the riparian owner was exclusively entitled by virtue of his situation were (1) the right of access to the water from his land and to his land from the water, a right which the United States were not bound to preserve for his benefit and which it might destroy in the interest of the public; and (2) the right to accretions to his land; that is, additions gradually and imperceptibly made to it. Beyond the line of high water and on the shore adjacent to his land and in the stream the riparian owner had the same rights only as other members of the public.

"The acts of Congress of 1790 and 1791, accepting the cession by Maryland, did not, in terms, authorize the laying out of the city of Washington. The commissioners, provision for whose appointment was made, were charged with the duty of defining and limiting the Federal district, under the direction of the President, and were authorized to acquire by purchase or gift such quantity of land as the President might deem proper 'for the use of the United States,' and to erect buildings for the accommodation of Congress, the President, and public offices of the Government.

"Provision for laying out the city upon lands held in private ownership was made by deeds of conveyance of such lands, by the owners, in trust for that purpose. The city of Washington had its origin in these deeds. Under the trusts declared in them, the President was empowered to formulate the plan of a 'Federal city' and it was provided that title to the streets of the city should be vested in the United States in fee simple.

"The plan adopted by the President brought the city to the water's edge, and exhibited a street along the margin of the river, as the owner of which, if it had been laid out, on the lands conveyed, as contemplated by the deeds and by the plan, the United States would have become the riparian owner.

"In carrying the plan into effect, on the ground, the authority of the commissioners was confined to the upland. They were invested with no authority to lay out streets and squares in the Anacostia River.

"The acts of Congress of 1790 and 1791 gave them no power to appropriate lands the title to which was in the United States and the deeds in trust did not and could not confer such power upon them.

"The State of Maryland after the cession had no power or jurisdiction to appropriate or provide for the appropriation of the soil of the river for wharfing or other purposes. Congress only could exercise that power. So much of the Maryland act of 1791 as gave the commissioners authority to license the building of wharves in the water of the Potomac and Anacostia Rivers was, therefore, ultra vires and the wharfing regulations, issued by the commissioners and based upon it, were void.

"The commissioners disregarded the plan adopted by the President and its principles in laying out the city along the shore of the Anacostia River. The city as it should have been laid out along the river is shown on Exhibit No. 1, being a section of the plan adopted by the President; and the city, as it was actually laid out, along the river, by the commissioners is shown on Exhibit No. 2, being a section of a plan, based on returns of surveys, prepared in 1797 in the commissioners' office.

"The commissioners did not lay out the street along the margin of the river, as called for by the plan, thus depriving the United States, so far as it was in their power to do so, of the riparian ownership which it was intended by the plan that it should possess.

"They laid out squares, bounded on all sides by streets, partly on the upland bordering on the river and partly on land under the waters of the river, which belonged to the United States.

"They laid out squares, bounded on all sides by streets and wholly on land under said waters, which belonged to the United States.

"They laid out squares, with boundaries on the sides, which projected indefinitely into the waters of the river and apparently intended to extend to the navigable channel.

"And, although title to such submerged land was absolute in the United States, they subjected it to the provision of the deeds for 'a fair and equal division' between themselves and the original proprietors of the upland. This is illustrated by Exhibits Nos. 3 to 10, inclusive.

"They permitted and authorized the erection of wharves and buildings in the waters of the river.

"These acts were done without authority from Congress, and they afford no valid foundation for claims of title to the submerged land by private persons as against the United States.

"The commissioners were arbitrary and inconsistent in their rulings as to what constituted 'water property,' although without authority whatever in the matter. Lots situated in a particular manner with respect to the water were held to be entitled to the privilege of wharfing while other lots similarly situated were held not to be so entitled.

"The confusion and uncertainty as to rights and titles along the river front of the city on the Anacostia is due to the unauthorized acts of the commissioners.

"The late corporation of the city of Washington was invested with certain powers over wharves by the first legislation of Congress on the subject. The power to license the erection of private wharves was not included in such powers, and the power was not granted to the District governments created by the acts of 1871, 1874, or 1878, and it was not vested in the District commissioners by the act of March 3, 1899.

"From the beginning of the city, therefore, there has been no private wharf on the Anacostia River having the authority of an act of Congress for its erection and maintenance.

"Plenary power over the matter of public wharves was granted to the city of Washington by Congress and under the act of 1899 is now vested in the commissioners of the District."

The title to land along this frontage is now being investigated under the direction of the Attorney General by the Commission to Investigate the Title of the United States to Lands in the District of Columbia, and it is understood that suits are in contemplation to determine the ownership to several pieces of this property. This is valuable water frontage, and it is hoped that the matter of its ownership will soon be definitely determined, so that the improvement of the frontage can be given consideration.

JAMES CREEK CANAL.

This canal formerly extended from G Street to the Anacostia River. It has been filled from G Street practically to N Street. From N Street to P Street, a distance of about 1,000 feet, the frontage on both sides of the canal is under lease. From P Street to the outlet of the canal, a distance of about 3,000 feet, it extends along the grounds of the War College and Engineer School. The business carried on by the

lessees of the portion between N and P Streets consists in the handling of lumber, wood, and building materials. The canal is quite shallow, owing to the fact that it is not dredged, and there is practically no flow of water in it. No difficulty, however, is experienced in leasing the adjoining property.

WHARVES ALONG THE GEORGETOWN CHANNEL.

All of this wharf property is under private control with the exception of the foot of streets. The Cranford Paving Co. leases the foot of Thirty-third Street, and the foot of Thirtieth Street has been used as a depot for unloading wood under the direction of the superintendent of weights and measures, who collects wharfage fees, and it has also been used as a shipping point for street sweepings to the workhouse site at Occoquan, Va.

The Chief of Engineers and the commissioners have recently established the harbor lines along this frontage, and some improvements have been made thereon by private parties. A steam railroad has recently been extended along the Water-Street frontage of this property, and it is believed that the frontage has become more commercially valuable by reason of this improvement.

IMPROVEMENT OF THE HARBOR FRONT.

The wharf committee again calls attention to its report on the improvement of the water front, which was forwarded to Congress by the commissioners May 23, 1908, and printed as Senate Document No. 519, Sixtieth Congress, first session. The estimated cost of the work of improvement outlined in this report was about \$3,000,000. This would be a large expenditure, but your committee believes that it would be justifiable in order to make the water frontage of the city of Washington a credit to the city. Under existing conditions it is far from so. It is possible that this plan might be modified so as to reduce the cost without interfering with the proper development of this frontage, but your committee believes that steps should be taken at an early date to secure some appropriation to begin improvements.

No extensive improvements can be expected by the present lessees, owing to the short time for which their leases run, and it is not believed desirable to enter into long-term leases under existing conditions. If money were appropriated to rebuild the entire frontage along the Washington channel, it is believed that a proper return on the investment could be received in the way of rentals, and besides the appearance of this section would be much improved.

DANIEL E. GARGES,
T. J. C. BAILY, JR.,
RUSSELL DEAN,
Wharf Committee.

Maj. WILLIAM V. JUDSON,
Engineer Commissioner, District of Columbia.

List of wharf property under lease June 30, 1911.

POTOMAC RIVER FRONT.

Name of lessee.	Location.	Expires—	Water frontage.	Area.	Rental per year.
American Ice Co.....	Section 2, structures 54 to 58, 60 to 67, and 78 to 88.	Mar. 15, 1913	<i>Fect.</i> 496	<i>Sq. ft.</i> 102,100	\$2,500.00
Conrad F. Bennett.....	Section 2, structures 89 to 97.	.....do.....	54	7,500	200.00
Cranford Paving Co.....	Foot of Thirty-first Street NW.	Feb. 1, 1918	33	.....	240.00
Capital Yacht Club.....	Foot of Ninth Street NW., between structures 39 and 41.	July 1, 1912	24	2,080	75.00
L. A. Clarke & Son.....	Section 2, structures 68 to 77, inclusive, and 70½.	May 1, 1913	280	45,800	1 750.00
Church & Wimsatt.....	Section 2, structures 34 and 35.	Mar. 15, 1913	80	18,000	720.00
Colonial Beach Co.....	Section 1, structures 31 to 37, inclusive.	.....do.....	132	8,000	300.00
Ed. A. Cumberland.....	Section 2, structures 39 and 40.	Mar. 15, 1912	40	2,400	70.00
The J. Maury Dove Co.....	Foot of G Street NW.....	Sept. 1, 1911	100	.....	120.00
G. W. Forsberg.....	Section 2, structures 22 to 23, except 24, and 118, 119, and 120.	Mar. 15, 1913	156	18,000	733.00
Ed. J. Gardner.....	Section 3, structure 21.....	Oct. 1, 1911	20	1,600	75.00
Wm. C. Hamburg.....	Section 3, structure 23.....	Apr. 15, 1912	18	1,440	60.00
Independent Steamboat & Barge Co.....	Section 1, structures 26 to 30.	Oct. 1, 1912	120	7,000	300.00
J. Harrison Johnson.....	Section 3, structures 12 to 20.	Mar. 15, 1913	168	38,000	750.00
Johnson & Wimsatt.....	Section 3, structures 5 to 11, inclusive.	.....do.....	190	43,500	900.00
John Miller.....	Section 3, structures 24 to 27, inclusive.	.....do.....	200	26,600	2 300.00
Mount Vernon & Marshall Hall Steamboat Co.....	Section 1, structures 59, 62, 63, and 64.	.....do.....	125	10,000	600.00
Nicholson & Freeman.....	Section 2, structures 36, 37, and 38.	Mar. 15, 1912	44	3,320	100.00
Norfolk & Washington Steamboat Co.....	Section 1, structures 41 to 49, and 57 to 60.	Mar. 15, 1913	220	20,300	1,200.00
Do.....	Section 1, structures 60, and 65 to 72.	Jan. 1, 1912	190	44,000	1,500.00
Potomac Gunning & Fishing Club.....	Section 2, structures 42 and 43.	.....	18	1,000	3 60.00
Potomac & Chesapeake Steamboat Co.....	Section 2, structures 11, 12, 14, 15, 16, 17, 17½, 18, 20, 21, 13, and 19.	Mar. 15, 1913	198	35,600	810.00
Wm. A. Ragan.....	Section 3, structure 22.....	Mar. 15, 1912	45	2,600	100.00
Stephenson Bros.....	Section 2, structures 1 to 10, inclusive.	Feb. 1, 1912	300	59,900	900.00
Geo. A. Tasker.....	Section 2, structure 41 and south of 41.	.....	18	1,148	3 60.00
White Oak Coal Co.....	Section 3, structure at foot of Thirteen-and-a-half Street SW., opposite square southeast of 267.	Mar. 15, 1912	200	35,000	400.00
Fish wharf, formerly leased to W. W. Riley, now in litigation.	Section 2, structures 98 to 129, inclusive; section 3, structures 1 to 4, inclusive.	.....	496	117,800	.....
District of Columbia sand wharf.	Section 2, structures 43 to 53, inclusive.	.....	147	24,500	.....
District of Columbia fire-boat wharf.	Section 1, structures 39 and 40.	.....	.....	.....	.....
District of Columbia morgue..	Section 1, structures 41 and 42.	.....	.....	.....	.....
District of Columbia harbor-master's wharf.	Section 1, structure 38.....	.....	.....	.....	.....
Total.....	.....	.....	.....	.....	14,873.00

¹ Also \$750 in improvements.² Also \$300 in improvements.³ Monthly lease.

List of wharf property under lease June 30, 1911—Continued.

ANACOSTIA RIVER (EASTERN BRANCH).

Name of lessee.	Location.	Expires—	Water front- age.	Rental per year.
Harry D. Bailey.....	North side just west of new Anacostia to west abutment wall of old Anacostia Bridge.	Oct. 18, 1911	<i>Feet.</i> 81.0	\$76.00
C. C. Carlsen.....	Water front between building lines of Fourth Street SE.	June 30, 1912	50.0	50.00
Chas. L. Gummel.....	Water front between building lines of N Street SE.	(¹)	.....	67.50
Thomas Keely.....	Water frontage on south bank of river, of alley adjacent to lot 3, block 7, Twining City.	Aug. 1, 1911	10.0	10.00
Samuel E. Masson.....	Water frontage on south bank of river, foot of Naylor Street SE.	Apr. 14, 1911	60.0	10.00
District of Columbia, sewer division.	Foot of First Street SE.....		198.0	.....
Do.....	Opposite lot 1, square south of square 744.		132.2	.....
Thomas W. Smith.....	Square south of square 744.....	Nov. 5, 1914	132.2	132.00
Miss Kate Tole.....	West of abutment of old Anacostia Bridge.	June 30, 1911	48.0	48.00
United States, Superintendent Capitol Buildings and Grounds.	Foot of First Street SE., opposite square south of square 744.		40.0	.....
William E. Wood.....	Foot of Eleventh Street SE., west of abutment of old Anacostia Bridge.	June 30, 1911	45.0	45.00
Total.....				438.50

¹ Monthly lease.

JAMES CREEK CANAL.

L. A. Clarke & Son.....	Parcels 5, 7, and 11.....	June 30, 1912	277	\$207.75
Cohen Bros.....	Part of parcel 8.....	do.....	127	158.75
Eugene Hall.....	Parcel 30.....	Feb. 12, 1912	20	10.00
Lewis Jefferson.....	Parcel 9.....	June 30, 1912	100	75.00
Robert Murphy.....	Parcels 1 and 3.....	do.....	445	173.50
Henry Raum.....	Parcel 31.....	May 7, 1912	100	50.00
George C. Taylor.....	Part of parcel 8.....	Feb. 1, 1912	195	171.25
Do.....	Parcels 4 and 6 south of parcel 8.....	Nov. 15, 1911	136	225.00
Urban & Bradley.....	Parcel 13.....	Mar. 15, 1912	125	84.00
Washington Brick & Terra Cotta Co.	Parcels 2 and 10.....	June 30, 1912	570	427.50
Total.....				1,582.75

TOTAL RENTALS.

Potomac River front.....	\$14,873.00
Anacostia River front.....	438.50
James Creek Canal.....	1,582.75
Total.....	16,894.25

REPORT OF BOARD FOR CONDEMNATION OF INSANITARY BUILDINGS.

AUGUST 28, 1911.

GENTLEMEN: We have the honor to submit the following report of the transactions of the board for the condemnation of insanitary buildings for the year ending June 30, 1911:

EXAMINED.

	1907	1908	1909	1910	1911
Buildings in alleys.....	175	156	79	94	78
Buildings in streets.....	274	354	349	315	315
Total.....	449	510	428	409	393

DEMOLISHED.

	1907	1908	1909	1910	1911
Buildings in alleys.....	89	124	52	68	42
Buildings in streets.....	115	217	179	154	145
Total.....	204	341	231	222	187

REPAIRED.

	1907	1908	1909	1910	1911
Buildings in alleys.....	33	64	50	97	71
Buildings in streets.....	61	66	115	187	142
Total.....	94	130	165	284	213

Total number of houses acted upon since the creation of the board for the condemnation of insanitary buildings up to and including June 30, 1911.

	Examined.	Demolished.	Repaired.	Pending.
Buildings in alleys.....	582	375	315	46
Buildings in streets.....	1,607	810	571	72
Total.....	2,189	1,185	886	118

Cases referred for appropriate action under existing regulations.....	420
Total number of meetings of the board during the fiscal year ending June 30, 1911.....	17
Preliminary notices served.....	221
Condemnation notices served.....	57
Condemnation signs affixed to buildings.....	54
Total.....	332

Estimated number of tenants in streets and alleys required to secure other quarters through action on the part of the board for the condemnation of insanitary buildings for the year ending June 30, 1911.....	608
Total number of tenants in streets and alleys required to secure other quarters through action on the part of the board for the condemnation of insanitary buildings since the creation of the board.....	3,530
Estimated number of tenants in streets and alleys benefited by repairs through action on the part of the board for the condemnation of insanitary buildings for the year ending June 30, 1911.....	782
Estimated total number of tenants benefited by repairs to dwellings in streets and alleys since the creation of the board for the condemnation of insanitary buildings.....	3,213

Number of inspections and miscellaneous visits made during the year in connection with examination of buildings and service of notices.....	1 3, 207
Assessed valuation of improvements removed in alleys during fiscal year 1911.....	\$4, 700. 00
Assessed valuation of improvements removed in streets during fiscal year 1911.....	30, 800. 00
Total assessed valuation of property demolished in streets and alleys for the fiscal year 1911.....	35, 500. 00

In calculating the assessed valuation of property demolished no consideration has been given to the value of the land, which in all cases greatly exceeds the value of the improvements located thereon. The improvements are taken at the assessed valuation, which is supposed to be two-thirds of the actual value.

Three cases have been referred to the corporation counsel for appropriate action in the police court, which resulted in the vacation or removal of the buildings in question.

Special attention is still being given to structures unprovided with sewer and water connections with a view of assisting the health department in eliminating box privies by making the owner provide such connection or remove the structure if its condition does not warrant the expense of connecting it with the public sewer and water mains. In the enforcement of the regulations requiring a proper sanitary condition in premises where food is served to transient customers, it has been necessary for the board to make examination of many lunch rooms, oyster houses, and other places where food was prepared, in order to have the buildings placed in a sanitary condition, demolished, or vacated for the purpose proposed.

Five hundred and fifty-five of the tenants affected by the removal of condemned buildings were colored and 53 were white. Many of the tenants have gone and others are still going to the suburbs of the District, Maryland, and Virginia, and renting or purchasing cheap homes, which with the larger-sized lots, provide much better facilities for light and ventilation. The majority of houses located in the alleys at the present time are of such a structural character that under the present law they are not condemnable to destruction, but are kept in repair because of notices served from time to time as conditions warrant.

In the inspection of houses in the distant suburbs it is found that many insanitary conditions are created by lack of adequate sewer and water facilities, and it is respectfully recommended that action be taken to extend sewer and water mains as soon as appropriations for same are available.

Credit is due, generally, to the owners, both resident and nonresident, and the real estate agents throughout the city, for prompt compliance with the orders of the board and also for assistance rendered in many cases of unrecorded transfers, failure to locate owners through the directory, and other causes which rendered the service of notices peculiarly difficult. Owners and agents have taken the initiative in many cases and applied for building permits to make the necessary changes and alterations to place the buildings in a habitable and sanitary condition, which otherwise would have necessitated service of notice on the part of the board.

During the year it has not been necessary for the board to demolish any structures through refusal or neglect of the owner or owners to comply properly with the orders served upon them. One case, involving three houses, is now pending before the court of appeals, and it is impossible to foretell the outcome at the present time.

Consideration was given by the board to the conversion of certain alleys into interior parks or playgrounds, and Willow Tree Alley SW., square 534, was selected by the board as one of the first alleys that would properly come within the scope of this class of legislation. Data covering the approximate cost of the work and a general report of the conditions in the alley were prepared and submitted to the commissioners, and under date of March 2, 1911, the act of Congress appropriating \$78,000 for the conversion of this alley into an interior park was approved. The legal work necessary for the condemnation of the property to be acquired is now in progress, and the actual work of condemnation and removal of the buildings in question will probably be started during the coming year.

The board during the year has given much consideration and made personal inspections of various alleys in the city with a view to eliminating same either by conversion of the square involved into an interior park or a minor street. Certain squares in the city are impracticable of conversion into minor streets, owing to the many side alleys adjacent to the main alley. In cases of this character, the board feels that the total demolition of buildings on the interior of the square and the conversion

¹ Average of 10.2 inspections and miscellaneous visits per working day during year.

of the open space into a park offers the best solution of all the problems the situation presents.

After a personal examination of the various alleys, the board has the honor to make the following recommendations in connection with the conversion of alleys into minor streets and interior parks:

Goat Alley NW., square 449, located between Sixth, Seventh, L, and M Streets NW., is one of the large inhabited alleys of the city, and the 42 brick and frame structures located therein provide living quarters for 11 white and 243 colored inhabitants, making a total of 254 residents, according to the census of 1910. The 19 frame and 23 brick houses are of such a character structurally that condemnation proceedings by the board for the condemnation of insanitary buildings would not be practicable, and notices are served from time to time to correct such minor defects as are brought to the attention of the board. The average rental of 42 houses in this alley amounts to \$7.99 per month. The Government owns approximately 14,925 square feet in alleys in this block, and for the conversion of this alley into an interior park it would be necessary to acquire about 31,557 square feet, with the 42 brick and frame structures located thereon. The board, therefore, recommends the conversion of the interior of this square into a park, with an appropriate opening on L Street NW., as indicated on plat on file in the office of the Engineer Commissioner, at an estimated cost of \$60,000.

Hughes Court NW., square 16, between Twenty-fifth, Twenty-sixth, I, and K Streets NW., is a square that lends itself readily to the conversion of the alley into a minor street at a moderate cost, owing to the vacant ground located on I and K Streets, in the north and south side of the proposed opening, and it is therefore recommended that this alley be converted into a minor street, and that the surveyor and the corporation counsel be instructed to do whatever may be necessary to accomplish this end.

Navy Place SE., square 878, between Sixth, Seventh, I, and G Streets SE., can be converted into a minor street at a moderate cost, and it is recommended that a minor street opening north and south take the place of the present confined alley, and that the same action regarding surveys and legal action be taken as in the case of Hughes Court.

In connection with the conversion of Willow Tree Alley SW. into an interior park, the board, having in mind its observations in connection with the proposed abandoning of Goat Alley NW., recommends that an opening be acquired, preferably on the B Street or Maryland Avenue side. The estimated cost of this improvement is approximately \$25,000.

Respectfully submitted.

E. M. MARKHAM,
Captain, Corps of Engineers, U. S. Army,
Assistant to Engineer Commissioner.

WM. C. WOODWARD, M. D.,
Health Officer, District of Columbia.

MORRIS HACKER,
Inspector of Buildings, District of Columbia.

To the COMMISSIONERS OF THE DISTRICT OF COLUMBIA

(Through Maj. WM. V. JUDSON,

Corps of Engineers, U. S. Army,

Engineer Commissioner, District of Columbia).

REPORT OF ASSISTANT ENGINEER IN CHARGE OF ROCK CREEK PARK,
DISTRICT OF COLUMBIA.

SIR: I have the honor to submit herewith a report of operations and expenditures in Rock Creek Park for the year ended June 30, 1911.

The amount appropriated for care and improvement of Rock Creek Park for the year was \$17,500. This was expended as follows:

Items.	Labor.	Material.	Total cost.
Building shelter.....	\$168.50	\$257.04	\$425.54
Oiling Ridge Road, August, 1910.....	149.13	517.53	666.66
Oiling Beach Driveway and Ridge Road, June, 1911.....	118.44	787.70	906.14
E. G. Gummel, balance due on construction of bridge 219, Beach Drive.....			195.45
Bridge 218, on Beach Drive, built by hired labor.....	507.99	146.93	654.92
Bridge 217, on Morrow Road, built by hired labor (not finished).....	1,555.43	636.94	2,192.37
Grading Morrow Road, between Sixteenth Street and Military Road.....	3,436.86	89.79	3,526.65
Feed for horses and waterfowl.....		851.10	851.10
550 cubic yards crushed stone, and freight.....		653.13	653.13
1 lot crushed stone.....		47.95	47.95
Unloading and hauling crushed stone by contract.....	325.09		325.09
Road machine.....		110.00	110.00
Harness, etc.....		98.19	98.19
Construction material, paint, etc., for general use.....		94.19	94.19
Printing.....	11.50		11.50
Disbursing officer.....	51.84		51.84
General care of park, including clearing, mowing, care of bridle paths, sprinkling, hauling manure, etc.....	6,206.33		6,206.33
Blacksmithing, shoeing horses, repairs to wagons, harness, and tools, etc.....	315.92		315.92
Purchase of tools and miscellaneous items, not indicated above.....		136.40	136.40
Balance unexpended at this date.....			40.63
			17,500.00

The fact that a larger amount was available for improvement enabled more work to be undertaken than in the previous year. A bridge on the Beach Driveway which was under contract at the end of the previous fiscal year was completed; another small bridge on the Beach Drive was built by hired labor; and a third bridge on the new road entering the park near Kennedy Street was about completed. These bridges are all substantial masonry structures of rustic design, built of the native gray stone. All of the bridges necessary have now been built along upper Beach Driveway, and the grading and macadamizing can be done when funds are available.

The grading of a new road, to be called Morrow Road, was about completed. This road enters the park at the intersection of Kennedy Street and Sixteenth Street, and connects with the Military Road at the Beach Drive. The maximum grade is about 6 per cent; the length is nearly three-fourths of a mile. This road will be opened about September 15.

During the year the Ridge Road and Beach Driveway were oiled, at a cost of about \$1,600, eliminating the necessity for sprinkling.

The shelter destroyed by fire during the previous year was rebuilt. The care of bridle paths and dirt roads; clearing a portion of the upper end of the park of underbrush; care of the draft horses; cutting grass; purchase of tools and materials, and general work of all kinds required the remainder of the funds available.

It is proposed during the coming year to grade Beach Driveway above the Military Road to a safer width in the cuts and fills, and to prepare it for macadam; and to macadamize as much of it as the funds will permit, so as to allow better access to the north end of the park; to build a toilet room near Pierce's mill; and to widen the Beach Driveway at the bridge near Pierce's mill.

Respectfully submitted.

L. R. GRABILL,
Assistant Engineer.

Maj. WILLIAM V. JUDSON,
Engineer Commissioner, D. C.,
Secretary Board of Control, Rock Creek Park.

REPORT OF THE SUPERINTENDENT OF THE DISTRICT BUILDING.

WASHINGTON, D. C., *August 30, 1911.*

SIR: We have the honor to report that in addition to the routine work incident to the maintenance of the District Building for the fiscal year ending June 30, 1911, several improvements, extensions, and changes of importance have been made in the building and mechanical equipment, among others, the installation of stationary chemical fire-extinguishing apparatus having two outlets on each floor with sufficient hose connected to reach to any part of the building. At each outlet there is a signal arranged to give an alarm to the superintendent of the building, the engine room, and the fire-alarm headquarters simultaneously.

During the summer of 1910, by direction of the commissioners, the office of the detective bureau was moved to the space formerly occupied by the water registrar and the assessor in the basement. The water registrar was moved to room No. 15, formerly occupied by the collector of taxes; the collector of taxes was moved to rooms Nos. 120 and 112, formerly occupied by the assessor, and the assessor's offices, formerly located in rooms Nos. 14 and 21 in the basement and rooms Nos. 112 and 120 in the first story, were moved to the space formerly occupied by the detective bureau, rooms Nos. 111, 113, 115, 117, and 119. The Board of Charities was moved from rooms Nos. 2 and 4 to Nos. 14 and 16 at the south end of the basement east corridor.

These changes required considerable alteration of the space involved, such as the removal of partitions and the erection of other partitions, and the removal and erection of counters and screens, metal file cases, etc.

The painting of the interior of the building was completed during the early part of the present summer.

Mechanical stokers were installed for burning bituminous coal. They have demonstrated their ability to burn such coal smokelessly and their use thus far indicates a saving of at least 20 per cent over the buckwheat anthracite coal, for which was expended during the last fiscal year \$8,200.

The details of expenditures are shown in the auditor's report of the appropriation for the "Maintenance of the Municipal Building, District of Columbia, 1911."

Very respectfully,

E. M. MARKHAM,
Captain, Corps of Engineers, U. S. A.,
MARK BROOKE,
Captain, Corps of Engineers, U. S. A.,
Jointly, Superintendent of the Building.

Maj. WILLIAM V. JUDSON,
Corps of Engineers, U. S. Army,
Engineer Commissioner, District of Columbia.

APPENDIX.

SPECIFICATIONS FOR PAVING STREETS AND AVENUES WITH SHEET ASPHALT.

1. *Work.*—The work to be done under this contract will consist of paving with sheet asphalt such streets, avenues, and roads in the District of Columbia, or parts thereof, or doing any portion of such work, as may be ordered in writing by the Commissioners of the District of Columbia, under appropriation for the fiscal year ending June 30, 1912. The estimated amount is 23,000 square yards of asphalt surface and 2,000 square yards of vitrified block gutter. These amounts are approximations only and may be considerably varied from; but they will be used in canvassing bids and the award will be based thereon, and will be made to the lowest acceptable bidder for all the work scheduled. The commissioners especially reserve the right to regulate the time and order of executing work ordered under this contract as may appear most advantageous to the interests of the District.

2. *Bids.*—The contractor will, for the prices bid, do all the work prescribed in these specifications; do all the necessary grading and trimming of the roadbed and all rolling; provide bridges, fences, and other means of maintaining travel on intersecting streets, roads, and railroads, and all private driveways after giving due notice to parties affected thereby; maintain the same in good and safe condition as long as may be necessary, and then remove such temporary expedients and restore such roads to their proper condition; provide watchmen, red lights, fences, and other precautionary measures necessary to the protection of persons and property; furnish all materials (except as specified) and all tools and implements, labor and transportation required to lay and put in complete order for use the specified pavement; and do each and all of these to the satisfaction of the engineer. Upon the completion of the work he will remove any temporary structures erected during the progress of the work, and restore all fixtures, pavements, and parkings, both public and private, to satisfactory condition.

3. *Grading and subgrade.*—The area over which the pavement is to be laid must be excavated to the proper depth below the surface of the pavement when completed, any objectionable or unsuitable matter below the bed being removed to such depths as may be directed by the engineer and the space filled with suitable material thoroughly compacted. The bed, after being trimmed so as to be parallel to the surface of the pavement when completed, will be thoroughly compacted by rolling, with a roller weighing not less than 5 tons and by heavy ramming at places which can not be reached by the roller, dampening the bed before rolling and ramming, if required, to the satisfaction of the engineer. No extra allowance will be made for trimming or rolling, but the volume of earth, etc., removed will be paid for as grading of its class.

4. *Concrete base.*—Upon the bed thus prepared there will be laid a 6-inch foundation of concrete as directed, made of the following materials by volume: 1 part Portland cement, 3 parts sand, 7 parts gravel.

Broken stone, run of the crusher, may be substituted for part or all of the gravel at the option of the contractor.

5. *Cement.*—The cement used shall conform to the current specifications for supplying cement of its kind to the engineer department of the District of Columbia. No brand of cement will be accepted for use which has not established itself as a high-grade Portland cement and given satisfaction for three or more years in use under climatic or other conditions of exposure of at least equal severity as those of the work proposed. No cement shall be used upon the work until it has been tested in the office of the engineer commissioner and accepted by him, the tests to extend over such length of time, not exceeding 28 days, as the engineer commissioner may think necessary. The cement while in storage or upon the work, or while being hauled upon the work, shall be properly protected, and no cement shall be used which, in the opinion of the engineer commissioner, has been injured by age or exposure. The cement shall be kept by the contractor in store, under proper cover, in the city of Washington, subject to inspection for at least 10 days after notifying the inspector of asphalt and cements, before it can be used on the streets, and if deemed advisable by the engineer commis-

sioner, 28 days. Should the contractor's work be delayed by his failure to keep himself supplied with the necessary amount of approved cement, the District shall have the right to furnish him with tested cement from the stocks on hand at its warehouse and charge said contractor with the cost of same at the rate of \$2 per barrel of Portland cement for each and every barrel so furnished, and collect the amount due therefor from any moneys found to be due to said contractor by the District.

6. *Sand*.—The sand used shall be clean, sharp river or pit sand, containing both fine and coarse grains, but free from sewage, mud, clay, mica, paper, leaves, chips, and other foreign matter and not showing when shaken with water and after subsidence more than 5 per cent, by volume, of silt.

7. *Broken stone*.—Stone used in concrete must be hard, durable, and properly broken to a size small enough to pass through a ring 2 inches in diameter when the run of the crusher is substituted for gravel. The run of the crusher shall not contain over 1 per cent of material passing a No. 10 sieve. The stone shall be thoroughly cleansed from all foreign substance, and shall be screened and washed, if so ordered by the engineer. Sand, detritus, or any material other than hard, angular fragments of stone will be considered foreign substances.

8. *Gravel*.—Gravel shall be clean, washed gravel, and shall not contain pebbles greater than 2 inches in their largest dimensions, and shall run from that down to pea size, well graduated.

9. *Water*.—Water used for mortar and concrete shall be fresh and clean, free from earth, dirt, or sewage, and shall be used in such quantity as the engineer may direct.

10. *Platforms*.—Platforms shall be provided upon which all sand, gravel, and broken stone for concrete shall be placed when brought upon the line of the work, and kept there until used.

11. *Mixing*.—The thorough mixing and incorporation of all materials will be insisted upon. If done by hand labor the dry cement and sand shall be turned over and mixed with shovels by skilled workmen not less than six times before the water is added; the stone or gravel, after being drenched with water, shall be added to the mixed sand and cement; the drenching shall not be done while the stone or gravel is in the wheelbarrow; the whole mass shall be thoroughly turned over with shovels, not less than four times, and mixed upon a water-tight platform until every particle of stone or gravel is completely enveloped with mortar. The whole operation of mixing and laying each batch shall be performed as expeditiously as possible, by the aid of machinery or a sufficient number of skilled men. If the concrete is mixed in batches requiring 1 barrel of cement, the platform must not be smaller than 10 feet by 12 feet, nor will a larger amount of concrete than can be made with 1 barrel of cement be allowed to be mixed in one batch by hand. In mixing by machinery the materials must be so delivered as to insure a uniform product of the specified proportions of all ingredients to the satisfaction of the engineer.

12. *Setting*.—Concrete shall not be used after it has begun to show evidence of setting. No concrete which has once set shall be used as material for mixing a new batch.

Each batch of concrete after being mixed shall be spread in place in horizontal layers by means of shovels so as to give the requisite thickness after being tamped, and shall then be thoroughly compacted. Any evidence of lack of compaction will be regarded as sufficient reason for removal and replacement of the base. Hauling over base less than 3 days old must not be allowed unless planks are laid.

13. *Binder*.—The binder course shall be composed of clean, broken stone, equal in quality to the stone for the base, and passing an inch and a quarter screen. Eighty-five per cent of this shall pass said screen in its longest dimensions, and of the remaining 15 per cent no piece shall have a larger dimension than $1\frac{1}{2}$ inches, and the stone, after passing the heating drums, shall not contain less than 5 nor more than 15 per cent of material passing a No. 10 screen.

The stone will be heated not higher than 350° F., in suitable appliances. It is then to be thoroughly mixed by machinery with asphalt cement, such as is acceptable for surface cement, penetration 60 to 90, at such temperature and in such proportions that the resulting binder will have life and gloss without an excess of cement. Should it appear dull from overheating or lack of cement, it will be rejected. While hot it will be hauled upon the work, spread upon the base so that when compacted it will be at least $1\frac{1}{2}$ inches in thickness, and immediately rammed and rolled until it is cold. Should the resulting course not show a proper bond, it must be immediately removed and replaced by and at the expense of the contractor. Binder and top shall not be taken to the site of the work when weather conditions are, in the judgment of the engineer, unsuitable for the work of laying the pavement.

The contractor shall not enter upon a concrete base in order to lay the binder course until it has obtained sufficient strength for such a purpose, and during the period

between laying the base and binder he shall properly protect it, and, when ordered by the engineer, shall sprinkle it in warm weather between the hours of sunset and sunrise as often as may be deemed necessary, and in cold weather cover it with a material suitable for its protection.

14. *Asphalt wearing surface.*—The wearing surface of the pavement shall be composed of asphalt, petroleum oil, asphalt cement, clean, sharp-grained sand, and fine absorbent mineral dust.

15. *Asphalt.*—The asphalt shall be refined until homogeneous and free from water and shall not at any time be heated to a temperature high enough to injure it. The refined product shall contain at least 90 per cent of bitumen soluble in carbon bisulphide and 100 parts shall not require more than 30 parts of the flux to produce the asphalt cement described in paragraph 19.

16. *Petroleum oil.*—The oil in use in the manufacture of asphalt cement shall be a petroleum from which the lighter oils have been removed by distillation without cracking, until the oil has the following characteristics:

Free from water and foreign matter.

Flash point, not less than 300° F.

Distillate at 400° for 30 hours, less than 10 per cent.

The flash point shall be taken in a New York State closed oil tester.

The distillate shall be made with about 50 grams of oil in a small glass retort, provided with a thermometer and packed entirely in asbestos. The residue in the retort, after distilling, must be fluid at 75° F., and not coarsely crystalline on cooling.

Any other softening agents fulfilling the above tests, and approved by the engineer commissioner, may be used in place of petroleum oil.

17. *Asphalt cement.*—The asphalt cement must be of refined asphalt, fluxed when necessary with petroleum residuum, asphaltic oil, refined maltha, or other approved flux. The cement must be practically free from water and must be within the range of 40 and 70 penetration when tested at 77° F. on Dow penetration machine with No. 2 needle, 100 grams, 5 seconds. The degree of penetration to be fixed by the engineer commissioner.

Preference will be given to an asphalt cement that is not readily affected by the action of water, provided it is satisfactory in other respects. If an asphalt cement is accepted that is affected by water some provision satisfactory to the engineer commissioner must be made to guard against the results of such action, and such work must be included in the price bid. The use of an asphalt under these specifications shall be subject to the approval of the engineer commissioner, and if an asphalt has been proposed for use by the contractor and approved by the engineer commissioner no change in the asphalt to be used shall be made unless with the approval of the engineer commissioner. If an asphalt or flux is submitted for use which has not been successfully used for a period of at least two years for paving under conditions similar to those existing in the District of Columbia, its use may be limited to such extent as may be deemed advisable, or it may be rejected for use entirely in the discretion of the engineer commissioner.

The bitumen of the asphalt cement must comply with the following tests:

1. It must be of such consistency that when tested at 32° F. it will not show a hardness below 10 penetration, and when tested at 115° F. it will not be softer than 350 penetration.

2. When a briquette of the pure bitumen, having a minimum cross section of one square centimeter, is tested for ductility at 77° F., the bitumen must stretch at the rate of 5 centimeters per minute to a distance of 15 centimeters before breaking.

3. When the bitumen is heated in an open tin box $\frac{3}{4}$ -inch deep by 2 $\frac{1}{2}$ inches in diameter at a temperature of 300° F. for 18 hours in a hot-air oven it must not show a loss by volatilization of over 5 per cent. and it must not have been hardened over 50 per cent by this heating.

The asphalt cement must never be heated to a temperature that will injure it.

When the asphalt cement contains over 5 per cent of material that will separate by subsidence while in a molten condition, it must be thoroughly agitated before drawing from storage and while in use in the supply kettles so as to insure a uniform cement.

These properties shall be determined by tests made by uniform methods, descriptions of which are on file in the office of the engineer commissioner.

18. *Sand.*—The sand in use shall be free from mud, hard grained, and moderately sharp. On sifting it should have at least 15 per cent of material that would be caught on a 40-mesh per inch screen, 25 per cent of material that will pass an 80 mesh to the inch screen, and 10 per cent at least must pass a 100 mesh to the inch screen. If the sand to be used does not contain the desired fine material, mineral dust can be added to make up the deficiency, and in any case at least 5 per cent of such mineral dust shall be used. The amount of fine material may be increased or diminished on streets of light traffic, at the discretion of the engineer commissioner.

19. *Mineral dust.*—This shall be any fine hydraulic cement or limestone dust, the whole of which shall pass a 30-mesh screen, and at least 85 per cent pass a 100-mesh screen.

20. *Asphalt paving mixture.*—The materials complying with the above specifications shall be mixed in proportion by volume depending upon their character and the traffic on the street, and upon the character of the asphalt, and will be determined by the engineer commissioner, but the percentage of bitumen in any mixture soluble in carbon bisulphide shall not exceed the limits, 9 to 13 per cent. If the proportions of the mixture are varied in any manner from those specified, the mixture will be condemned; its use will not be permitted; and, if already placed on the streets, it must be removed and replaced by proper materials at the expense of the contractor.

The sand, or the mixture of sand and stone dust, and the asphaltic cement will be heated separately to about 300 degrees F. The dust, if limestone, will be mixed while cold with the hot sand in the required proportions and then mixed with the asphaltic cement at the required temperature, and in the proper proportion in a suitable apparatus, so as to effect a thoroughly homogeneous mixture. Sand boxes and asphalt gauges will be weighted in the presence of inspectors as often as may be desired.

Samples of all material entering into the composition of the pavement shall be supplied to the inspector of asphalt and cements when required, in suitable tin boxes and cans; he shall have access to all branches of the works at any time and shall have the right to obtain samples of all materials from the source of supply.

The pavement mixture, prepared in a manner thus indicated, will be brought to the ground in carts or wagons at a temperature of not less than 250° or more than 350° F., the contractor must provide canvas covers for use in transit. It will then be shoveled into place and thoroughly spread to a thickness of at least 2½ inches by means of hot iron rakes, in such manner as to give uniform and regular trade, so that after having received its ultimate compression, it will have a net thickness of at least 1½ inches. This depth will be constantly tested by means of gauges furnished by the engineer commissioner. The surface will then be compressed by hand or steam rollers, after which a small amount of hydraulic cement will be swept over it, and it will then be thoroughly compressed by a steam roller weighing not less than 175 pounds to the inch run, the rolling being continued for not less than five hours for every 1,000 yards of surface. The street to be barricaded until the surface is cool. Barricades to remain for such length of time as deemed necessary by the engineer commissioner.

21. *Hauling and grading.*—(a) The old material from the streets will be hauled to the nearest property yard or to such other point as the engineer commissioner may direct.

(b) Lines and grades will be established by the engineer commissioner, and no work will be commenced until these are given.

(c) Contractors are to be responsible for the proper preservation of all stakes, etc., set by the engineer for the determination of line or grade; should any such be disturbed through carelessness, the cost of replacing same will be charged against the contractor at a fixed price of \$2 for each point, to be deducted from any money found due at final settlement.

(d) All material excavated, of whatsoever nature, is the property of the District, and will be disposed of as the engineer commissioner shall direct.

(e) The filling will be done in layers not exceeding 12 inches in thickness, and all materials used for this purpose will be subject to approval. If improper or unsuitable material be used, it will be removed at the cost of the contractor.

(f) All measurements will be made in place, and payments made thereon.

(g) Should the grading involve work in both "cut" and "fill," the measurement of it will be computed on the basis of the volume of the material in place in the "cut" only; the excavated earth from the "cut" section, deposited in the "fill," will not be again paid for as "fill." Should the amount of cut on the street not suffice to make the necessary fill, the amount borrowed from other designated localities will be paid for as grading.

22. *Laying vitrified block.*—Vitrified-block gutters will ordinarily be 18 inches wide, laid on a concrete base 6 inches in depth, of the same material and proportions and laid in the same manner as prescribed in these specifications for the concrete base under asphalt pavements.

As soon as practicable after the concrete base has been laid, a dry mixture, composed of 4 parts of the sand specified in paragraph 6, and 1 part of Portland cement, thoroughly mixed, will be spread thereon, as a bed for the paving blocks, to the depth of not less than one-half inch, and regulated so as to be exactly parallel to the finished grade of the gutter.

On the bed prepared for them the blocks will be set on edge, with the longest dimensions at right angles to the curb, or as directed by the engineer.

The longitudinal joints of each course of blocks laid must be broken by a lap of not less than 4 inches.

The blocks will then be carefully rammed by placing a plank over several courses and ramming the plank with a heavy hammer. The ramming will be continued until the blocks reach a firm, unyielding bed and present a uniform surface, with proper grade. Any lack of uniformity in the surface or defect in the grade must be corrected by taking up and relaying the blocks.

After proper ramming the entire gutter will be thoroughly grouted with a thin, easily flowing grout, of neat natural cement.

A similar construction of block to that described for the gutters may be used adjacent to railroad tracks; the base will in that case extend to the bottom of the cross-ties, or at least 6 inches thick.

The blocks will be furnished the contractor at the District property yards, and must be hauled to the work at his expense.

ADDITIONAL WORK.

23. The following specifications will cover incidental work which may be required of the contractor:

24. *Setting 6 by 20 inch granite and bluestone curb.*—This curb will be set in the following manner: A trench parallel to the curb line, having a depth of 24 inches below the top of the curb when set, and 20 inches wide, will be excavated to receive the curb and its gravel bed; the dimensions of the trench, in width, will be 14 inches from the curb line toward the building line of the street, and 6 inches from said curb line toward the center line of the street. In the trench thus prepared the curb will be set and brought to line and grade, with plumb face. Spalls of stone, hard burned brick, or other acceptable substance, prepared for the purpose, will be used to adjust the stone to grade, and these spalls will be so placed and adjusted as to support the curbing permanently and afford a firm and stable support for it without the use of small chips and fragments used as "shimming" pieces to wedge the stone in place. After the stone has been properly placed and adjusted to line and grade, the trench will be filled with gravel of approved quality to within 8 inches of the top of the curb, the filling to be done in layers of not more than 3 inches in depth and thoroughly compacted by suitable ramming. Close contact joints and even surfaces must be made, and the lines and grades furnished strictly followed.

25. *Setting 8 by 8 inch granite curb.*—This curb will be set in the following manner: A trench parallel to the curb line, having a depth of 15 inches below the top of the curb when set, and 18 inches wide, will be excavated to receive the concrete and the curb. The dimensions of the trench in width will be 14 inches from the curb line toward the building and 4 inches from the curb line toward the center line of the street. In this trench thus prepared a bed of concrete will be laid, filling the trench to a depth of 5 inches, composed of 1 part of Portland cement, 4 parts of clean concrete sand, and 10 parts of screened pebbles, the material to be mixed and laid under the same conditions as prescribed for laying cement concrete base for sheet asphalt pavements. On the base prepared and laid as above, the curb will be placed after the concrete has set and adjusted to line and grade by setting it to a firm, unyielding bearing in a bed of freshly-made concrete by the use of heavy wooden mauls. The face of the curb must be plumb and true to line, and the top of it carefully set to grade with close and even contact joints. After the stone has been set to line and grade, the trench on the footwalk side will be immediately filled with concrete to within 5 inches of the top of the curb, which will be thoroughly rammed and compacted, after which it will immediately be covered with earth to prevent injury to it through too rapid evaporation, etc. In case vitrified-block gutters are to be laid in front of the curb, any portion of the concrete base of the curb that would interfere with the laying of block must be removed before the concrete is set.

26. *Resetting 6 by 20 inch granite and bluestone curb.*—The work to be done under this classification is identical with that specified for setting curb, except no hauling of the curb is required other than that incidental to the necessary disposition of it upon the line of the work. Under this classification also the curb may be adjusted to line and grade without removing it from its trench, if so ordered by the engineer.

27. *Resetting 8 by 8 inch granite curb.*—The work to be done under this classification is identical with that specified for setting this class of curb, except that no hauling of the curb is required other than that incidental to the disposition of it in the work, and no new concrete is required other than that sufficient to imbed the stone and back it and adjust it to line and grade.

28. *General instructions.*—All curb will be furnished to the contractor at the District property yard and will be hauled by him to the site of the work; any curbing unaccounted for, or improperly disposed of, or damaged, or broken, through careless

or unskilled handling, will be charged against him, and the value of the loss to the District will be deducted from any amount due the contractor for work done, as determined by the engineer.

All expenses connected with or incidental to the work of setting or resetting curb, as described above, including the hauling of the curbing, preparing the curb trenches, and the necessary grading connected therewith, furnishing gravel and spalls, furnishing and placing concrete, and all other material and labor necessary to execute the work in accordance with the specifications therefor are included in the fixed price for the respective items as hereinafter stated. The cost of dressing, jointing, or cutting the curb will be paid for additionally, but no other claim for additional compensation will be entertained.

Should the adjoining brick footwalks be disturbed in order to set or reset the curb, the portion so disturbed shall be repaved, if required by the engineer, without cost to the District.

29. *Additional work.*—Contractors must do such additional work incident to construction of new pavements as may be ordered on each street by the engineer commissioner. All such work shall be in accordance with current District specifications. Prices paid for this work will be as stated below:

- (1) Removing old curb, including haul not to exceed 2 miles, 8 cents per linear foot.
- (2) Hauling same beyond distance of 2 miles, 1 cent per linear foot per mile.
- (3) Hauling from District property yard and setting 6 by 20 inch curb, 25 cents per linear foot.
- (4) Resetting 6 by 20 inch and bluestone curb, 25 cents per linear foot.
- (5) Hauling from District property yard and setting 8 by 8 inch curb, 35 cents per linear foot.
- (6) Resetting 8 by 8 inch curb on new concrete base, 31 cents per linear foot.
- (7) Resetting 8 by 8 inch curb on old concrete base, 15 cents per linear foot.
- (8) Dressing, jointing, and cutting curb, etc. (stonecutters' time), including setting-up labor, 65 cents per hour.
- (9) Removing old rubble, cobble, flagging stone and brick, asphalt block, vitrified block or brick, etc., including haul not to exceed 2 miles, 15 cents per square yard.
- (10) Hauling same beyond distance of 2 miles, 1 cent per square yard per quarter mile or fraction thereof.
- (11) Removing old granite block, including haul not to exceed 2 miles, and removal of old paving bed and cleaning concrete base where same exists, 25 cents per square yard.
- (12) Hauling same beyond distance of 2 miles, 1 cent per square yard per quarter mile or fraction thereof.
- (13) Removing old coal-tar or asphalt surface and binder from concrete base in connection with resurfacing work, including haul, 12 cents per square yard.
- (14) Grading and hauling earth, not to exceed 1,000 feet, 55 cents per cubic yard.
- (15) Grading and hauling macadam, not to exceed 1,000 feet, 55 cents per cubic yard.
- (16) Removing old coal-tar and bituminous pavement or base of the class laid since 1880 and hauling not to exceed 1,000 feet, \$1 per cubic yard.
- (17) Removing old coal-tar and bituminous pavement or base of the class laid prior to 1880, and hauling same not to exceed 1,000 feet, \$1.85 per cubic yard.
- (18) Removing old concrete base and hauling not to exceed 1,000 feet, \$1.50 per cubic yard.
- (19) Hauling excavated material, per 100 feet, over first 1,000 feet, 1 cent per cubic yard.
- (20) Laying new or old vitrified brick or block on new 6-inch concrete base, \$1.30 per square yard.
- (21) Laying or relaying vitrified brick or block on old concrete base, 60 cents per square yard.
- (22) Laying and relaying asphalt block and vitrified brick or block on gravel base, 40 cents per square yard.
- (23) Cleaning old vitrified brick or block for relaying, 25 cents per square yard.
- (24) Laying and relaying granite block, 75 cents per square yard.
- (25) Relaying cobble and rubble, 30 cents per square yard.
- (26) Repairing cement walks, \$1.50 per square yard.
- (27) Repairing brick walks, 25 cents per square yard.
- (28) Laying asphaltic or broken stone base in place, \$3 per cubic yard.
- (29) Laying Portland cement concrete base in place, \$5 per cubic yard.
- (30) Adjusting manhole tops and basin covers to grade, \$1.50 each.
- (31) Adjusting water-valve casings to grade, \$3 each.
- (32) Adjusting electric-light or telephone manhole tops to grade, as follows:
 - (a) Size, 14 by 18 inches, \$1 each.
 - (b) Size, 36 by 36 inches, \$1.50 each.
 - (c) Size, 6 by 6 feet, \$4 each.

30. *Extra work.*—The contractor must be prepared to do any extra work that may be ordered in writing by the engineer, and for this he will be paid at current rates for work of a similar character, or, if the extra work should be of a class for which no rate is fixed by current contracts, the actual reasonable cost to the contractor, as determined by the engineer, plus 15 per cent of said cost.

The contractor shall have no claim for compensation for extra work unless same is ordered in writing by the engineer. All additional and extra work shall conform to current District of Columbia specifications therefor.

31. *Guaranty.*—All work under this contract will be guaranteed and kept in repair by the contractor without cost to the District for a period of five years from date of its acceptance by the commissioners. This date shall be the date of completion of the last street thereunder. Ten per cent of the cost of this work will be retained and disposed of as otherwise provided for herein.

It is further expressly understood and agreed that if any of the pavements laid should, for any reason whatsoever, within the period of five years, prove inferior to the best laid in the District prior to July 1, 1904, then the contractor shall, on demand of the commissioners, remove such defective pavements and relay them with new material of approved quality, and in accordance with these specifications. The engineer commissioner shall decide the question of inferiority.

On expiration of guaranty for maintenance the work is to be inspected, and all imperfections, depressions, and unevenness of surface, alignment and grade of curbs, sidewalks, etc., must be corrected where and to such extent as the engineer commissioner shall direct, upon which the engineer commissioner will accept the same in writing, and until such acceptance the guaranty shall be in force. Repairs that may become necessary during the guaranty period will be made by the contractor when ordered by the engineer.

32. *Payments.*—Payments will be made monthly, provided the progress of the work is satisfactory, less 10 per cent of each estimate, to be withheld until final payment; but 10 per cent of the cost of the work will be retained and invested as hereinbefore provided.

33. *Retain fund.*—The retain fund shall be subject to the control of the Commissioners of the District of Columbia for the purpose of maintaining the work in repair and making good any defects discovered during the period specified, and insuring that the terms of the contract shall be strictly and faithfully performed. In the event of the contractor failing to make such necessary repairs after notice to do so the commissioners may cause such work to be done and deduct the cost of the same from the retain fund, and, in their discretion, may require of the contractor and his sureties that any portion of the said retain fund which may have been expended for the maintenance of the work shall be made good by further deposit.

34. *Site of work.*—The bidder is expected to examine the site of work before bidding, as no allowance will be made for any unusual difficulties which may arise, either affecting the original construction or maintenance of the finished work.

35. Certificates of indebtedness against street railway companies will be given to the contractor for all work done and all materials furnished by him for the space which must be paved and kept in repair at the expense of said companies in accordance with existing laws.

36. Contractors shall be responsible for any work done upon any street over plumbers' cuts or other work done by permission of the commissioners before the work is begun.

37. The commissioners reserve the right to modify these specifications as may from time to time seem desirable. The amount of compensation, if any, due the contractor for said modifications will be determined by the engineer commissioner on the same basis as in the case of extra work.

SPECIFICATIONS FOR RESURFACING AND REPAIRING ASPHALT AND COAL-TAR PAVEMENTS.

1. *Work.*—The work to be done under this proposal and contract includes the renewal or resurfacing of such asphalt and coal-tar pavements as may be ordered from time to time by the engineer commissioner or his assistants, and the renewal of the surface of cuts made for tapping sewers and pipes, or for other purposes, and generally all patching and miscellaneous work necessary to keep the above-mentioned pavements in good condition for travel, including the repairs of sidewalks and other pavements disturbed in doing the above work or changed to conform to new grades, if so ordered.

2. *Amount of work.*—The amount of work is dependent upon the annual appropriation for "Repairs to streets," which was \$400,000 for the fiscal year ending June 30, 1911, and is \$425,000 for the fiscal year ending June 30, 1912. For the purpose of canvassing bids the following approximate estimate of the amount of work to be done

during each fiscal year of this contract will be used (material for street railway repairs not estimated, and will not be considered in the canvass of bids):

Standard asphalt pavement on 6-inch concrete base.....	square yards..	70,000
Standard asphalt surface (2½ inches before compression).....	do.....	35,000
Standard asphalt surface, cubic-foot measurement (heater method), cubic feet.....	cubic feet..	40,000
Standard asphalt surface, cubic-foot measurement (repairs and miscellaneous work, cuts, etc.).....	cubic feet..	125,000
Asphalt binder, cubic-foot measurement, in connection with resurfacing.....	cubic feet..	60,000
Asphalt binder, cubic-foot measurement, for repairs and miscellaneous work, cuts, etc.....	cubic feet..	95,000

3. *Bids*.—The contractor will, for the prices bid, do all the work prescribed in these specifications; do all the necessary grading and trimming of the roadbed and all rolling; provide bridges, fences, and other means of maintaining travel on intersecting streets, roads, and railroads, and all private driveways after giving due notice to parties affected thereby; maintain the same in good and safe condition as long as may be necessary, and then remove such temporary expedients and restore such roads to their proper condition; provide watchmen, lights, fences, and other precautionary measures necessary to the protection of persons and property; furnish all materials (except as specified) and all tools and implements, labor, and transportation required to lay and put in complete order for use the specified pavement; and do each and all of these to the satisfaction of the engineer. Upon the completion of the work he will remove any temporary structures erected during the progress of the work, and restore all fixtures, pavements, and parkings, both public and private, to satisfactory condition.

4. *Old material*.—The amount of old material to be cut and removed each day shall be decided by the engineer commissioner or his agents. Should the contractor remove more than ordered, he must replace it with new material without cost to the District. No payment will be made for any coal-tar or asphalt surface removed in making repairs, and the material thus removed will become the property of the contractor, to be disposed of by him. Any coal-tar or asphalt surface and binder removed from concrete base in resurfacing work will be paid for at the price named in paragraph 41 of the specifications, and such material will become the property of the contractor and be disposed of by him unless the engineer commissioner should elect to retain title to any of this material, in which event the contractor will for the price named deliver the same to a distance not to exceed 2 miles from the site of the work. Where the old pavement, base and surface, is removed for the purpose of laying a new pavement the material will be the property of the District, and the work will be paid for at the prices named in paragraph 41 of the specifications. Granite blocks, cobble, old curb, etc., must be removed to the nearest property yard or to such place within the section of the city being repaired as the engineer commissioner may direct.

ASPHALT PAVEMENTS.

All asphalt work will be done in accordance with the following specifications:

5. *Grading and subgrade*.—The area over which the pavement is to be laid must be excavated to the proper depth below the surface of the pavement when completed, any objectionable or unsuitable matter below the bed being removed to such depth as may be directed by the engineer and the space filled with suitable material thoroughly compacted. The bed, after being trimmed so as to be parallel to the surface of the pavement when completed, will be thoroughly compacted by rolling with a roller weighing not less than 5 tons and by heavy ramming at places which can not be reached by the roller, dampening the bed before rolling and ramming, if required, to the satisfaction of the engineer. No extra allowance will be made for trimming or rolling, but the volume of earth, etc., removed will be paid for as grading of its class.

6. *Concrete base*.—Upon the bed thus prepared there will be laid a 6-inch foundation of concrete as directed, made of the following materials by volume: 1 part Portland cement, 3 parts sand, 7 parts gravel. Broken stone, run of the crusher, may be substituted for part or all of the gravel at the option of the contractor.

7. *Cement*.—The cement used shall conform to the current specifications for supplying cement of its kind to the engineer department of the District of Columbia. No brand of cement will be accepted for use which has not established itself as a high-grade Portland cement and given satisfaction for three or more years in use under climatic or other conditions of exposure of at least equal severity as those of the work proposed. No cement shall be used upon the work until it has been tested in the office of the engineer commissioner and accepted by him, the tests to extend over

such length of time, not exceeding 28 days, as the engineer commissioner may think necessary. The cement while in storage or upon the work, or while being hauled upon the work, shall be properly protected, and no cement shall be used which, in the opinion of the engineer commissioner, has been injured by age or exposure. The cement shall be kept by the contractor in store, under proper cover, in the city of Washington, subject to inspection for at least 10 days after notifying the inspector of asphalt and cements, before it can be used on the streets, and if deemed advisable by the engineer commissioner, 28 days. Should the contractor's work be delayed by his failure to keep himself supplied with the necessary amount of approved cement, the District shall have the right to furnish him with tested cement from the stocks on hand at its warehouse and charge said contractor with the cost of same at the rate of \$2 per barrel of Portland cement for each and every barrel so furnished, and collect the amount due therefor from any moneys found to be due to said contractor by the District.

8. *Sand*.—The sand used shall be clean, sharp river or pit sand, containing both fine and coarse grains, but free from sewage, mud, clay, mica, paper, leaves, chips, and other foreign matter and not showing when shaken with water and after subsidence more than 5 per cent, by volume, of silt.

9. *Broken stone*.—Stone used in concrete must be hard, durable, and properly broken to a size small enough to pass through a ring 2 inches in diameter when the run of the crusher is substituted for gravel. The run of the crusher shall not contain over 1 per cent of material passing a No. 10 sieve. The stone shall be thoroughly cleansed from all foreign substance, and shall be screened and washed, if so ordered by the engineer. Sand, detritus, or any material other than hard, angular fragments of stone will be considered foreign substances.

10. *Gravel*.—Gravel shall be clean, washed gravel, and shall not contain pebbles greater than 2 inches in their largest dimensions, and shall run from that down to pea size, well graduated.

11. *Water*.—Water used for mortar and concrete shall be fresh and clean, free from earth, dirt, or sewage, and shall be used in such quantity as the engineer may direct.

12. *Platforms*.—Platforms shall be provided upon which all sand, gravel, and broken stone for concrete shall be placed when brought upon the line of the work, and kept there until used.

13. *Mixing*.—The thorough mixing and incorporation of all materials will be insisted upon. If done by hand labor the dry cement and sand shall be turned over and mixed with shovels by skilled workmen not less than six times before the water is added; the stone or gravel, after being drenched with water, shall be added to the mixed sand and cement; the drenching shall not be done while the stone or gravel is in the wheelbarrow; the whole mass shall be thoroughly turned over with shovels, not less than four times, and mixed upon a water-tight platform until every particle of stone or gravel is completely enveloped with mortar. The whole operation of mixing and laying each batch shall be performed as expeditiously as possible, by the aid of machinery or a sufficient number of skilled men. If the concrete is mixed in batches requiring one barrel of cement, the platform must not be smaller than 10 by 12 feet, nor will a larger amount of concrete than can be made with one barrel of cement be allowed to be mixed in one batch by hand. In mixing by machinery the materials must be so delivered as to insure a uniform product of the specified proportions of all ingredients to the satisfaction of the engineer.

14. *Setting*.—Concrete shall not be used after it has begun to show evidence of setting. No concrete which has once set shall be used as material for mixing a new batch.

Each batch of concrete after being mixed shall be spread in place in horizontal layers by means of shovels so as to give the requisite thickness after being tamped, and shall then be thoroughly compacted. Any evidence of lack of compaction will be regarded as sufficient reason for removal and replacement of the base. Hauling over base less than three days old must not be allowed unless planks are laid.

15. *Binder*.—The binder course shall be composed of clean, broken stone, equal in quality to the stone for the base, and passing an inch and a quarter screen. Eighty-five per cent of this shall pass said screen in its longest dimensions, and of the remaining 15 per cent no piece shall have a larger dimension than $1\frac{1}{2}$ inches, and the stone after passing the heating drums shall not contain less than 5 nor more than 15 per cent of material passing a No. 10 screen.

The stone will be heated not higher than 350° F., in suitable appliances. It is then to be thoroughly mixed by machinery with asphalt cement, such as is acceptable for surface cement, penetration 60 to 90, at such temperature and in such proportions that the resulting binder will have life and gloss without an excess of cement. Should it appear dull from overheating or lack of cement, it will be rejected. While hot it will be hauled upon the work, spread upon the base so that when compacted

it will be at least $1\frac{1}{2}$ inches in thickness, and immediately rammed and rolled until it is cold. Should the resulting course not show a proper bond, it must be immediately removed and replaced by and at the expense of the contractor. Binder and top shall not be taken from the yard to the site of the work when weather conditions are, in the judgment of the engineer, unsuitable for the work of laying the pavement.

The contractor shall not enter upon a concrete base in order to lay the binder course until it has obtained sufficient strength for such a purpose, and during the period between laying the base and binder he shall properly protect it, and, when ordered by the engineer, shall sprinkle it in warm weather between the hours of sunset and sun rise as often as may be deemed necessary, and in cold weather cover it with a material suitable for its protection.

16. *Asphalt wearing surface.*—The wearing surface of the pavement shall be composed of asphalt, petroleum oil, asphalt cement, clean, sharp-grained sand, and fine absorbent mineral dust.

17. *Asphalt.*—The asphalt shall be refined until homogeneous and free from water, and shall not at any time be heated to a temperature high enough to injure it. The refined product shall contain at least 90 per cent of bitumen soluble in carbon bisulphide, and 100 parts shall not require more than 30 parts of the flux to produce the asphalt cement described in paragraph 19.

18. *Petroleum oil.*—The oil in use in the manufacture of asphalt cement shall be a petroleum from which the lighter oils have been removed by distillation without cracking, until the oil has the following characteristics:

Free from water and foreign matter.

Flash point, not less than 300° F.

Distillate at 400° for 30 hours, less than 10 per cent.

The flash point shall be taken in a New York State closed oil tester.

The distillate shall be made with about 50 grams of oil in a small glass retort, provided with a thermometer and packed entirely in asbestos. The residue in the retort, after distilling, must be fluid at 75° F. and not coarsely crystalline on cooling.

Any other softening agents fulfilling the above tests and approved by the engineer commissioner may be used in place of petroleum oil.

19. *Asphalt cement.*—The asphalt cement must be of refined asphalt, fluxed when necessary with petroleum residuum, asphaltic oil, refined maltha, or other approved flux. The cement must be practically free from water and must be within the range of 40 and 70 penetration when tested at 77° F. on Dow penetration machine with No. 2 needle, 100 grams, 5 seconds. The degree of penetration to be fixed by the engineer commissioner.

Preference will be given to an asphalt cement that is not readily affected by the action of water, provided it is satisfactory in other respects. If an asphalt cement is accepted that is affected by water, some provision satisfactory to the engineer commissioner must be made to guard against the results of such action, and such work must be included in the price bid. The use of an asphalt under these specifications shall be subject to the approval of the engineer commissioner, and if an asphalt has been proposed for use by the contractor and approved by the engineer commissioner no change in the asphalt to be used shall be made unless with the approval of the engineer commissioner. If an asphalt or flux is submitted for use which has not been successfully used for a period of at least two years for paving under conditions similar to those existing in the District of Columbia, its use may be limited to such extent as may be deemed advisable or it may be rejected for use entirely in the discretion of the engineer commissioner.

The bitumen of the asphalt cement must comply with the following tests:

1. It must be of such consistency that when tested at 32° F. it will not show a hardness below 10 penetration, and when tested at 115° F. it will not be softer than 350 penetration.

2. When a briquette of the pure bitumen, having a minimum cross section of 1 square centimeter, is tested for ductility at 77° F., the bitumen must stretch to a distance of 15 centimeters before breaking.

3. When the bitumen is heated in an open tin box three-fourths inch deep by 2½ inches in diameter at a temperature of 300° F. for 18 hours in a hot-air oven it must not show a loss by volatilization of over 5 per cent and it must not have been hardened over 50 per cent by this heating.

The asphalt cement must never be heated to a temperature that will injure it.

When the asphalt cement contains over 5 per cent of material that will separate by subsidence while in a molten condition it must be thoroughly agitated before drawing from storage and while in use in the supply kettles so as to insure a uniform cement.

These properties shall be determined by tests made by uniform methods, descriptions of which are on file in the office of the engineer commissioner.

20. *Sand*.—The sand in use shall be free from mud, hard grained and moderately sharp. On sifting it should have at least 15 per cent of material that would be caught on a 40 mesh per inch screen, 25 per cent of material that will pass an 80 mesh to the inch screen, and 10 per cent at least must pass a 100 mesh to the inch screen. If the sand to be used does not contain the desired fine material, mineral dust can be added to make up the deficiency, and in any case at least 5 per cent of such mineral dust shall be used. The amount of fine material may be increased or diminished on streets of light traffic at the discretion of the engineer commissioner.

21. *Mineral dust*.—This shall be any fine hydraulic cement or limestone dust, the whole of which shall pass a 30-mesh screen and at least 85 per cent pass a 100-mesh screen.

22. *Asphalt paving mixture*.—The materials complying with the above specifications shall be mixed in proportion by weight, depending upon their character, and the traffic on the street, and upon the character of the asphalt, and will be determined by the engineer commissioner, but the percentage of bitumen in any mixture soluble in carbon bisulphide shall not exceed the limits, 9 to 13 per cent. If the proportions of the mixture are varied in any manner from those specified the mixture will be condemned; its use will not be permitted, and if already placed on the streets it must be removed and replaced by proper materials at the expense of the contractor.

The sand, or the mixture of sand and stone dust, and the asphaltic cement will be heated separately to about 300° F. The dust, if limestone, will be mixed while cold with the hot sand in the required proportions and then mixed with the asphaltic cement at the required temperature and in the proper proportion in a suitable apparatus so as to effect a thoroughly homogeneous mixture. Sand boxes and asphalt gauges will be weighed in the presence of inspectors as often as may be desired.

Samples of all material entering into the composition of the pavement shall be supplied to the inspector of asphalt and cements when required in suitable tin boxes and cans. He shall have access to all branches of the works at any time and shall have the right to obtain samples of all materials from the source of supply.

The pavement mixture prepared in a manner thus indicated will be brought to the ground in carts or wagons at a temperature of not less than 250° or more than 350° F. The contractor must provide canvas covers for use in transit. It will then be shoveled into place and thoroughly spread to a thickness of at least 2½ inches by means of hot iron rakes in such manner as to give uniform and regular grade so that, after having received its ultimate compression, it will have a net thickness of at least 1½ inches. This depth will be constantly tested by means of gauges furnished by the engineer commissioner. The surface will then be compressed by hand or steam rollers, after which a small amount of hydraulic cement will be swept over it, and it will then be thoroughly compressed by a steam roller weighing not less than 175 pounds to the inch run, the rolling being continued for not less than five hours for every 1,000 yards of surface. The street to be barricaded until the surface is cool. Barricades to remain for such length of time as deemed necessary by the engineer commissioner.

23. *Asphaltic base*.—Asphaltic base will be composed of clean broken stone, free from spalls, that will pass through a 2-inch ring, well rammed, and rolled with a steam roller weighing not less than 5 tons. The rolling will be continued until the stone ceases to creep before the roller and until it is evident that the final compression has been reached. It will then be thoroughly coated with asphaltic paving cement of approved quality as directed.

RESURFACING OVER ASPHALT AND COAL-TAR PAVEMENTS.

24. The above specifications shall also apply as far as practicable to all work of resurfacing. Where the binder coat can not be made of uniform thickness, it will be paid for by the cubic foot. The engineer commissioner will decide which method of payment will be adopted in each case.

RESURFACING BY THE HEATER METHOD.

25. The engineer commissioner may order certain streets resurfaced by what is known as the Lutz asphalt heater method or a similar device satisfactory to the engineer commissioner, as follows:

The old surface of the street shall be heated and softened by means of this heater to the satisfaction of the engineer commissioner or his authorized agent, and so much of the old asphalt topping so softened shall be removed as may be directed. Immediately upon the surface exposed by the removal of the aforesaid old top there shall be deposited new asphaltic-top material, and immediately the same shall be spread by means of hot shovels and rakes to such an amount and of such thickness as will not be less than 1½ inches before compression, as may be directed by the District

inspector assigned to the work, the intention being to cover the new surface while still hot with hot new material. This new material so spread shall without delay be rolled with hand or steam rollers and finally finished by means of a steam roller of not less than 5 tons weight to a firm condition as to compression and to a regular section in a manner entirely similar to that of new construction. It is the intent of this specification that new work shall be joined to old in all cases with a hot joint, and the contractor is expected to make every reasonable effort to secure this result. Successive heatings shall be made when necessary, as above described, until the entire street or such portions thereof as indicated has been covered. This class of resurfacing will not be considered new work, and therefore no retent will be held on the amount paid for this class of work. The same will be paid for by the cubic foot of material furnished, and the price bid on material for this class of work will include all incidental work in connection therewith, such as cutting out old material where necessary and removing same, also removing old heated material, cleaning up, etc., as in the case of ordinary repairs. In the event that asphaltic binder is required in connection with this work it will be paid for by the cubic foot at the price named in item 4 of the contract prices herein for binder furnished in connection with resurfacing work.

ORDINARY REPAIRS.

26. The work to be done under this head includes the repairing of all asphalt and coal-tar pavements where defective, due to wear or accident; the repairs of all cuts such as those made for tapping sewers, water pipes, etc.; and generally all patching and miscellaneous work necessary to keep the pavements in good condition for travel during the contract period. The pavement must be repaired with materials as described above.

27. The repairs shall be made at such times and places and in such manner as may be directed, and when deemed necessary on certain streets, between the hours of 8 p. m. and 8 a. m. All old material shall be cut out and removed at the contractor's expense, and in the case of undercuts any overhanging portion shall be removed.

28. Except in special cases the base of the pavement over any cuts will be laid by the District and the surface only by the contractor. The engineer commissioner may, however, call upon the contractor to lay the base wherever he may deem it advisable.

29. The holes cut out shall be cleaned and the edges painted with hot paving cement of such quality as may be acceptable to the engineer commissioner.

30. Barricades of a suitable form to prevent traffic over recently laid work shall be provided and kept in place until the surface has hardened sufficiently to withstand pressure. These barricades and their use must be subject to the approval of the engineer commissioner.

31. Work in repairing over plumber, electric light, and similar cuts will be done immediately on receipt of written order from the engineer commissioner.

32. Any work of repairs to pavement for which street railway companies are responsible, and which may be ordered under this contract by the proper authority, shall conform to these specifications and be paid for at the prices named in items 7 and 8 of the contract prices herein. In case any railway company shall fail or refuse to pay the sum due from said company in respect of work done by or under the orders of the proper officials of the District of Columbia, certificate of indebtedness against said railway company will be issued to the contractor for all work done and all materials furnished by him for the space which must be paved and kept in repair at the expense of said company in accordance with existing laws.

33. *Measurement.*—Asphaltic top and asphaltic binder specified herein to be paid for by the cubic foot shall be measured on the basis of the box or measure used for measuring at the plant; the sand, in the case of top mixture, and the stone in the case of binder mixture. In the case of asphaltic top mixture the actual net contents of the box as filled with sand will determine the amount of resultant top mixture to be paid for, and in the case of binder stone 92 per cent of the actual net contents of the box as filled with binder stone will determine the amount of resultant binder to be paid for, and payments on these bases will be made. This rule of measurement shall also apply to work done under the heater method.

ADDITIONAL WORK.

34. The following specifications will cover incidental work which may be required of the contractor in connection with the work of renewal, resurfacing, and repairs:

35. *Laying vitrified block.*—Vitrified-block gutters will ordinarily be 18 inches wide, laid on a concrete base 6 inches in depth, of the same material and proportions and laid

in the same manner as prescribed in these specifications for the concrete base under asphalt pavements.

As soon as practicable after the concrete base has been laid, a dry mixture, composed of 3 parts of the sand specified in paragraph 8, and 1 part of Portland cement, thoroughly mixed, will be spread thereon, as a bed for the paving blocks, to the depth of not less than one-half inch, and regulated so as to be exactly parallel to the finished grade of the gutter.

On the bed thus prepared the blocks will be set on edge, with the longest dimensions at right angles to the curb, or as directed by the engineer.

The longitudinal joints of each course of blocks laid must be broken by a lap of not less than 4 inches.

The blocks will then be carefully rammed by placing a plank over several courses and ramming the plank with a heavy rammer. The ramming will be continued until the blocks reach a firm, unyielding bed and present a uniform surface, with proper grade. Any lack of uniformity in the surface or defect in the grade must be corrected by taking up and relaying the blocks.

After proper ramming the entire gutter will be thoroughly grouted with a thin, easily flowing grout of neat Portland cement.

A similar construction of block to that described for the gutters may be used adjacent to railroad tracks; the base will in that case extend to the bottom of the cross-ties, or at least 6 inches thick.

The blocks will be furnished the contractor at the District property yards, and must be hauled to the work at his expense.

36. *Setting 6 by 20 inch granite and bluestone curb.*—This curb will be set in the following manner: A trench parallel to the curb line, having a depth of 24 inches below the top of the curb, when set, and 20 inches wide, will be excavated to receive the curb and its gravel bed. The dimensions of the trench in width will be 14 inches from the curb line toward the building line of the street and 6 inches from said curb line toward the center line of the street. In the trench thus prepared the curb will be set, and brought to line and grade, with plumb face. Spalls, of stone, hard burned brick or other acceptable substance, prepared for the purpose, will be used to adjust the curb to grade, and these spalls will be so placed and adjusted as to support the curbing permanently, and afford a firm and stable support for it, without the use of small chips and fragments, used as "shimming" pieces, to wedge the stone in place. After the curb has been properly placed, and adjusted to line and grade, the trench will be filled with gravel of approved quality, to within 8 inches of the top of the curb, the filling to be done in layers of not more than 3 inches in depth, and thoroughly compacted by suitable ramming. Close contact joints and even surfaces must be made, and the lines and grades followed strictly followed.

37. *Setting 8 by 8 inch granite curb.*—This curb will be set in the following manner: A trench parallel to the curb line, having a depth of 15 inches below the top of the curb, when set, and 18 inches wide, will be excavated to receive the concrete and the curb. The dimensions of the trench in width will be 14 inches from the curb line toward the building and 4 inches from the curb line toward the center line of the street. In the trench thus prepared a bed of concrete, composed of 1 part of Portland cement, 4 parts of clean concrete sand, and 10 parts of screened pebbles, will be laid, filling the trench to a depth of 5 inches, the material to be mixed and laid under the same conditions as prescribed for laying cement concrete base for sheet asphalt pavements. On the base prepared and laid as above, the curb will be placed before the concrete has set, and adjusted to line and grade by setting it to a firm, unyielding bearing in a bed of freshly made concrete, by the use of heavy wooden mauls. The face of the curb must be plumb and true to line, and the top of it carefully set to grade with close and even contact joints. After the curb has been set to line and grade, the trench on the foot-walk side will be immediately filled with concrete to within 5 inches of the top of the curb, which will be thoroughly rammed and compacted, after which it will immediately be covered with earth to prevent injury to it through too rapid evaporation, etc. In case vitrified-block gutters are to be laid in front of the curb, any portion of the concrete base of the curb that would interfere with the laying of such gutters must be removed immediately after the curb is set.

38. *Resetting 6 by 20 inch granite and bluestone curb.*—The work to be done under this classification is identical with that specified for setting this class of curb, except no hauling of the curb is required other than that incidental to the necessary disposition of it upon the line of the work. Under this classification also the curb may be adjusted to line and grade without removing it from its trench, if so ordered by the engineer.

39. *Resetting 8 by 8 inch granite curb.*—The work to be done under this classification is identical with that specified for setting this class of curb, except that no hauling of

the curb is required other than that incidental to the necessary disposition of it upon the line of the work, and no new concrete is required other than that sufficient to embed the stone at the back and adjust it to line and grade.

40. *General instructions.*—All curb will be furnished to the contractor at the District property yard, and will be hauled by him to the site of the work; any curbing unaccounted for, or improperly disposed of, or damaged, or broken, through careless or unskilled handling, will be charged against him, and the value of the loss to the district will be deducted from any amount due the contractor for work done, as determined by the engineer.

All expenses connected with or incidental to the work of setting or resetting curb, as described above, including the hauling of the curbing, preparing the curb trenches, and the necessary grading connected therewith, furnishing gravel and spalls, furnishing and placing concrete and all other material and labor necessary to execute the work in accordance with the specifications therefor, are included in the fixed price for the respective items as hereinafter stated; the cost of dressing, jointing, or cutting the curb will be paid for additionally, but no other claim for additional compensation will be entertained.

Should the adjoining brick footwalks be disturbed in order to set or reset the curb, the portion so disturbed shall be repaved, if required by the engineer, without cost to the District.

41. *Additional work.*—Contractors must do such additional work incident to construction of new pavements as may be ordered on each street by the engineer commissioner. All such work shall be in accordance with current District specifications. Prices paid for this work will be as stated below:

- (1) Removing old curb, including haul not to exceed 2 miles, 8 cents per linear foot.
- (2) Hauling same beyond distance of 2 miles, 1 cent per linear foot per mile.
- (3) Hauling from District property yard and setting 6 by 20 inch curb, 25 cents per linear foot.
- (4) Resetting 6 by 20 inch and bluestone curb, 25 cents per linear foot.
- (5) Hauling from District property yard and setting 8 by 8 inch curb, 35 cents per linear foot.
- (6) Resetting 8 by 8 inch curb on new concrete base, 31 cents per linear foot.
- (7) Resetting 8 by 8 inch curb on old concrete base, 15 cents per linear foot.
- (8) Dressing, jointing, and cutting curb, etc. (stonecutter's time), including setting-up labor, 65 cents per hour.
- (9) Removing old rubble, cobble, flagging stone and brick, asphalt block, vitrified block or brick, etc., including haul not to exceed 2 miles, 15 cents per square yard.
- (10) Hauling same beyond distance of 2 miles, 1 cent per square yard per quarter mile or fraction thereof.
- (11) Removing old granite block, including haul not to exceed 2 miles, and removal of old paving bed and cleaning concrete base where same exists, 25 cents per square yard.
- (12) Hauling same beyond distance of 2 miles, 1 cent per square yard per quarter mile or fraction thereof.
- (13) Removing old coal-tar or asphalt surface and binder from concrete base in connection with resurfacing work, including haul, 12 cents per square yard.
- (14) Grading and hauling earth, not to exceed 1,000 feet, 55 cents per cubic yard.
- (15) Grading and hauling macadam not to exceed 1,000 feet, 55 cents per cubic yard.
- (16) Removing old coal-tar and bituminous pavement or base of the class laid since 1880 and hauling not to exceed 1,000 feet, \$1 per cubic yard.
- (17) Removing old coal-tar and bituminous pavement or base of the class laid prior to 1880 and hauling same not to exceed 1,000 feet, \$1.85 per cubic yard.
- (18) Removing old concrete base and hauling not to exceed 1,000 feet, \$1.50 per cubic yard.
- (19) Hauling excavated material, per 100 feet, over first 1,000 feet, 1 cent per cubic yard.
- (20) Laying new or old vitrified brick or block on new 6-inch concrete base, \$1.30 per square yard.
- (21) Laying or relaying vitrified brick or block on old concrete base, 60 cents per square yard.
- (22) Laying and relaying asphalt block and vitrified brick or block on gravel base, 40 cents per square yard.
- (23) Cleaning old vitrified brick or block for relaying, 25 cents per square yard.
- (24) Laying and relaying granite block, 75 cents per square yard.
- (25) Relaying cobble and rubble, 30 cents per square yard.
- (26) Repairing cement walks, \$1.50 per square yard.
- (27) Repairing brick walks, 25 cents per square yard.

- (28) Laying asphaltic or broken stone base in place, \$3 per cubic yard.
- (29) Laying Portland cement concrete base in place, \$5 per cubic yard.
- (30) Adjusting manhole tops and basin covers to grade, \$1.50 each.
- (31) Adjusting water-valve casings to grade, \$3 each.
- (32) Adjusting electric-light or telephone manhole tops to grade, as follows:
 - (a) Size, 14 by 18 inches, \$1 each.
 - (b) Size, 36 by 36 inches, \$1.50 each.
 - (c) Size, 6 by 6 feet, \$4 each.

42. *Extra work.*—The contractor must be prepared to do any extra work that may be ordered in writing by the engineer, and for this he will be paid at current rates for work of a similar character, or, if the extra work should be of a class for which no rate is fixed by current contracts, the actual reasonable cost to the contractor, as determined by the engineer, plus 15 per cent of said cost.

The contractor shall have no claim for compensation for extra work unless same is ordered in writing by the engineer. All additional and extra work shall conform to current District of Columbia specifications therefor.

43. *Guaranty.*—All work under this contract will be guaranteed and kept in repair by the contractor without cost to the District for a period of five years from date of its acceptance by the commissioners. This date shall be the same as that of the completion of the work as indicated on the final voucher for each street. Ten per cent of the cost of this work will be retained and disposed of as provided for by law. No retent will be held on ordinary repairs (minor repairs).

It is further expressly understood and agreed that if any of the pavements laid should, for any reason whatsoever within the period of five years, prove inferior to the best laid in the District prior to July 1, 1904, then the contractor shall, on demand of the commissioners, remove such defective pavements and relay them with new material of approved quality. The engineer commissioner shall decide the question of inferiority.

On expiration of guaranty for maintenance, the work is to be inspected, and all imperfections must be corrected where and to such extent as the engineer shall direct, upon which the engineer will accept the same in writing, and until such acceptance the guaranty shall be in force. Repairs that may become necessary during the guarantee period will be made by the contractor when ordered by the engineer commissioner.

44. *Retain fund.*—The retain fund shall be subject to the control of the Commissioners of the District of Columbia for the purpose of maintaining the work in repair and making good any defects discovered during the period specified. In the event of the contractor failing to make such necessary repairs after notice to do so the commissioners may cause such work to be done and deduct the cost of the same from the retain fund, and, in their discretion, may require of the contractor and his sureties that any portion of the said retain fund which may have been expended for the maintenance of the work shall be made good by further deposit.

45. *Site of work.*—The bidder is expected to examine the site of work before bidding, as no allowance will be made for any unusual difficulties which may arise, either affecting the original construction or maintenance of the finished work.

46. *Cuts.*—Contractors shall be responsible for any work done upon any street over plumbers' cuts or other work done by the permission of the commissioners before the work is begun.

47. The commissioners reserve the right to modify these specifications as may from time to time seem desirable. The amount of compensation, if any, due the contractor for said modifications will be determined by the engineer commissioner on the same basis as in the case of extra work.

SPECIFICATIONS FOR PAVING STREETS AND AVENUES WITH ASPHALT BLOCK.

1. *Work.*—The work to be done under this contract will consist of paving with asphalt block such streets, avenues, and roads in the District of Columbia, or parts thereof, or doing any portion of such work, as may be ordered in writing by the Commissioners of the District of Columbia, under appropriations for the fiscal year ending June 30, 1912. The estimated amount is 7,500 square yards. Should the price bid on concrete base justify such a course an additional area of 5,200 square yards may be ordered in that class.

2. *Bids.*—The contractor will, for the prices bid, do all the work prescribed in these specifications; do all the necessary grading and trimming of the roadbed and all rolling; provide bridges, fences, and other means of maintaining travel on intersecting streets, roads, and railroads, and all private driveways after giving due notice

to parties affected thereby; maintain the same in good and safe condition as long as may be necessary, and then remove such temporary expedients and restore such roads to their proper condition; provide watchmen, lights, fences, and other precautionary measures necessary to the protection of persons and property; furnish all materials (except as specified) and all tools and implements, labor and transportation required to lay and put in complete order for use the specified pavement; and do each and all of these to the satisfaction of the engineer. Upon the completion of the work he will remove any temporary structures erected during the progress of the work, and restore all fixtures, pavements, and parkings, both public and private, to satisfactory condition.

3. *Asphalt blocks.*—(a) The size of the blocks will be 4 by 5 by 12 inches for gravel base and 3 by 4 by 12 or 3 by 5 by 12 for concrete base, and a variation of one-fourth of an inch from these dimensions will be sufficient ground for rejecting any block.

(b) All bids must be accompanied by a specimen block of the size and quality described in these specifications, labeled with the name of the bidder and locality of the factory. Bids not accompanied by specimen blocks will not be accepted. The blocks will be tested for specific gravity; all blocks furnished must be equal in quality to the sample, as determined by the engineer commissioner.

(c) The blocks will be composed of ASPHALT, PETROLEUM OIL, and ASPHALT CEMENT.

4. *Asphalt.*—The asphalt shall be refined until homogeneous and free from water and shall not at any time be heated to a temperature high enough to injure it. The refined product shall contain at least 50 per cent of bitumen soluble in carbon bisulphide, and 100 parts shall not require more than 25 parts of the flux to produce the asphalt cement described in paragraph 6.

5. *Petroleum oil.*—The oil in use in the manufacture of asphalt cement shall be a petroleum from which the lighter oils have been removed by distillation without cracking, until the oil has the following characteristics:

Free from water and foreign matter.

Flash point not less than 300° F.

Distillate at 400° for 30 hours, less than 10 per cent.

The flash point shall be taken in a New York State closed oil tester.

The distillate shall be made with about 50 grams of oil in a small glass retort, provided with a thermometer and packed entirely in asbestos. The residue in the retort after distilling must be fluid at 75° F. and not coarsely crystalline on cooling.

Any other softening agents fulfilling the above tests and approved by the engineer commissioner may be used in place of petroleum oil.

6. *Asphalt cement.*—The asphalt cement must be practically free from water and shall not at any time reach a temperature high enough to injure it.

If an asphalt is accepted that is readily affected by water some provision satisfactory to the engineer commissioner must be made to guard against the results of such action, and such work must be included in the price bid.

The asphalt cement must comply with the following requirements and must in any case be subject to the approval of the engineer commissioner.

(1) For the purpose of testing the asphalt cement its composition shall be so regulated by the addition, if necessary, of standard fine absorbent mineral dust that it will contain 50 per cent of bitumen soluble in carbon bisulphide. This cement must be so tough at 32° F. that prism 1 centimeter square by 8 centimeters long between supports will not break under impact at center with less than 15 centimeter drop of 25 gramme weight.

(2) This cement must not be softer than 60 penetration when tested at 115° F.

(3) When the cement is heated in an open tin box three-fourths inch deep by 2½ inches in diameter at a temperature of 300° F. for 18 hours in a hot-air oven, it must not show a loss by volatilization of over 5 per cent, and it must not have been hardened over 50 per cent by this heating.

The asphalt cement must never be heated to a temperature that will injure it.

When the asphalt cement contains over 5 per cent of material that will separate by subsidence while in a molten condition, it must be thoroughly agitated before drawing from storage and while in use in the supply kettles, so as to insure a uniform cement.

These properties shall be determined by tests made by uniform methods, descriptions of which are on file in the office of the engineer commissioner.

7. *Mineral dust.*—This shall be any fine hydraulic cement or limestone dust, the whole of which shall pass a 30-mesh screen, and at least 85 per cent pass a 100-mesh screen.

8. *Crushed stone.*—The crushed stone in use shall be from any tough, hard rock, and shall not contain any appreciable amount of soft ingredients, such as mica, soft sandstone, or shale. On sifting, not more than 3 per cent shall be retained on a

3-mesh per inch screen, at least 40 per cent must be retained on 20 mesh per inch screen, and at least 12 per cent must pass a 100 mesh per inch screen. If the stone does not contain the desired fine material, mineral dust can be added to make up the deficiency, and in any case at least 5 per cent of such mineral dust shall be used.

9. *Asphalt-block mixture.*—The materials complying with the above specifications shall be mixed in proportions by weight, depending upon their character, which will be determined by the engineer commissioner, but in any mixture the percentage of bitumen soluble in carbon bisulphide shall not exceed the limits, 6 to 9 per cent.

If the proportions of the mixture are varied in any manner from those prescribed, the blocks will not be accepted.

The stone and dust and the asphaltic cement must be mixed while hot, and the mixture must be compressed into blocks by methods meeting with the approval of the engineer commissioner.

Samples of all material entering into the composition of the pavement shall be supplied to the Inspector of Asphalt and Cements when required, in suitable tin boxes and cans, and he shall have access to all branches of the works at all times.

Blocks for 4-inch pavement are to be manufactured with a total minimum compression of not less than 360,000 pounds per block, press pressure. Those for 3-inch pavement are to be manufactured with a total minimum compression of not less than 360,000 pounds for 3 by 5 by 12 or 240,000 pounds for 3 by 4 by 12 press pressure.

10. *Grading and subgrade.*—The area over which the pavement is to be laid must be excavated to the proper depth below the surface of the pavement when completed, any objectionable or unsuitable matter below the bed being removed to such depth as may be directed by the engineer and the space filled with suitable material thoroughly compacted. The bed, after being trimmed so as to be parallel to the surface of the pavement when completed, will be thoroughly compacted by rolling with a roller weighing not less than 5 tons and by heavy ramming at places which can not be reached by the roller, dampening the bed before rolling and ramming, if required, to the satisfaction of the engineer. No extra allowance will be made for trimming or rolling, but the volume of earth, etc., removed will be paid for as grading of its class.

ASPHALT-BLOCK PAVEMENT ON GRAVEL BASE.

11. *Gravel base.*—Upon the bed, prepared as above, is to be laid a base of good bank gravel, or other approved material, to be screened from all pebbles measuring more than $1\frac{1}{2}$ inches in their largest dimensions, so as to be 5 inches thick when thoroughly compacted. The gravel will then be thoroughly compacted by rolling with a roller weighing at least 5 tons, or by heavy ramming at places which can not be reached by the roller. The rolling will be continued until the gravel base cracks under the roller without compressing further. Upon this will be placed a layer of fine, sharp sand washed and dried, 2 inches in thickness, to serve as a bed for the blocks, which will be laid directly upon and embedded in it with close joints. Special care will be observed to make the surface of this bed of sand exactly parallel to the surface of the pavement when completed. Should the material found in the space to be occupied by the gravel bed be approved by the engineer for such use, it may be left in place and used as such bed after being satisfactorily trimmed and compacted.

Any material removed from the street in grading that is suitable may, with the approval of the engineer, be used in place of the gravel base if not needed for other public use.

12. *Method of laying blocks on gravel base.*—The asphalt blocks are to be laid on the bed of sand at right angles to the line of the street, and with such crown as the engineer commissioner may direct; each course to be of blocks of a uniform width and depth, and so laid that all longitudinal joints shall be broken by a lap of at least 4 inches. In laying the blocks the pavers must stand or kneel upon the blocks already laid and not upon the bed of sand. Each course of blocks will be driven against the course preceding it by a heavy maul, in order to make the lateral joints as tight as possible, and the longitudinal joints will be closed by pressing each course in the direction of its length by a lever. When thus laid, the blocks will be immediately covered with clean, fine sand, entirely free from any loam or earthy matter, perfectly dry, and screened through a sieve having not less than 20 meshes to the inch. This will be swept or raked into the joints, and the blocks will then be carefully rammed by placing a plank or iron plate over several courses and ramming it with a heavy rammer. The ramming will be continued until the blocks reach a firm, unyielding bed and present a uniform surface, with proper grade and crown. Any lack of uniformity in the surface must be corrected by taking up and relaying the blocks. When the ramming is completed a sufficient amount of fine, dry sand, as above described, will be spread over the surface.

ASPHALT-BLOCK PAVEMENT ON CONCRETE BASE.

13. *Concrete base.*—The space over which the pavement is laid will be excavated to the proper depth below the surface of the finished pavement, and trimmed, filled and rolled as described for gravel base. Upon this bed will be laid a base of concrete 4 inches thick, when compacted, and made of the following materials by volume: One part Portland cement, 4 parts sand, 9 parts gravel. Broken stone, run of the crusher, may be substituted for part or all of the gravel, at the option of the contractor.

14. *Cement.*—The cement used shall conform to the current specifications for supplying cement of its kind to the Engineer Department of the District of Columbia. No brand of cement will be accepted for use which has not established itself as a high-grade Portland cement and given satisfaction for three or more years under climatic or other conditions of exposure of at least equal severity as those of the work proposed. No cement shall be used upon the work until it has been tested in the office of the engineer commissioner and accepted by him, the tests to extend over such length of time not exceeding 28 days as the engineer commissioner may think necessary. The cement while in storage or upon the work, or while being hauled upon the work, shall be properly protected, and no cement shall be used which, in the opinion of the engineer commissioner, has been injured by age or exposure. The cement shall be kept by the contractor in store, under proper cover, in the city of Washington, subject to inspection, for at least 10 days after notifying the inspector of asphalt and cements, before it can be used on the streets, and, if deemed advisable by the engineer commissioner, 28 days. Should the contractor's work be delayed by his failure to keep himself supplied with the necessary amount of approved cement, the District shall have the right to furnish him with tested cement from the stocks on hand at its warehouse and charge said contractor with the cost of same at the rate of \$2 per barrel of Portland cement for each and every barrel so furnished, and collect the amount due therefor from any moneys found to be due to said contractor by the District.

15. *Sand.*—The sand used shall be clean, sharp, river or pit sand, containing both fine and coarse grains, but free from sewage, mud, clay, mica, paper, leaves, chips, and other foreign matter, and not showing when shaken with water and after subsidence more than 5 per cent, by volume, of silt.

16. *Broken stone.*—Stone used in concrete must be hard, durable, and properly broken to a size small enough to pass through a ring 2 inches in diameter when the run of the crusher is substituted for gravel. The run of the crusher shall not contain over 1 per cent of material passing a No. 10 sieve. The stone shall be thoroughly cleansed from all foreign substance, and shall be screened and washed, if so ordered by the engineer. Sand, detritus, or any material other than hard, angular fragments of stone will be considered foreign substances.

17. *Gravel.*—Gravel shall be clean, washed gravel, and shall not contain pebbles greater than 2 inches in their largest dimensions, and shall run from that down to pea size, well graduated.

18. *Water.*—Water used for mortar and concrete shall be fresh and clean, free from earth, dirt, or sewage, and shall be used in such quantity as the engineer may direct.

19. *Platforms.*—Platforms shall be provided upon which all sand, gravel, and broken stone for concrete shall be placed when brought upon the line of the work, and kept there until used.

20. *Mixing.*—The thorough mixing and incorporation of all materials will be insisted upon. If done by hand labor, the dry cement and sand shall be turned over and mixed with shovels by skilled workmen not less than six times before the water is added; the stone or gravel, after being drenched with water, shall be added to the mixed sand and cement; the drenching shall not be done while the stone or gravel is in the wheelbarrow; the whole mass shall be thoroughly turned over with shovels, not more than four times, and mixed upon a water-tight platform until every particle of stone or gravel is completely enveloped with mortar. The whole operation of mixing and laying each batch shall be performed as expeditiously as possible, by the aid of machinery or a sufficient number of skilled men. If the concrete is mixed in batches requiring one barrel of cement, the platform must not be smaller than 10 by 12 feet, nor will a larger amount of concrete than can be made with one barrel of cement be allowed to be mixed in one batch by hand. In mixing by machinery the materials must be so delivered as to insure a uniform product of the specified proportions of all ingredients to the satisfaction of the engineer.

21. *Setting.*—Concrete shall not be used after it has begun to show evidence of setting. No concrete which has once set shall be used as material for mixing a new batch.

Each batch of concrete after being mixed shall be spread in place in horizontal layers by means of shovels so as to give the requisite thickness after being tamped, and

shall then be thoroughly compacted. Any evidence of lack of compaction will be regarded as sufficient reason for removal and replacement of the base. Hauling over base less than 3 days old must not be allowed unless planks are laid.

22. *Method of laying blocks on concrete base.*—The 3-inch blocks are to be laid on this concrete base in a paving bed of mortar, made of 1 part Portland cement and 4 parts sand, at least one-half inch thick, and as much thicker as may be necessary, due to inequalities in surface of concrete base, so that the blocks, when tamped in place, will be securely embedded in the mortar and wholly supported by it, and will present a uniform surface with close joints and proper grade and crown. The pavement will then be thoroughly grouted with a thin, easily flowing grout of 1 part neat Portland cement and 1 part fine sand.

23. *Hauling and grading.*—(a) The old material from the streets will be hauled to the nearest property yard or to such other point as the engineer commissioner may direct.

(b) Lines and grades will be established by the engineer commissioner, and no work will be commenced until these are given.

(c) Contractors are to be responsible for the proper preservation of all stakes, etc., set by the engineer for the determination of line or grade; should any such be disturbed through carelessness, the cost of replacing same will be charged against the contractor at a fixed price of \$2 for each point, to be deducted from any money found due at final settlement.

(d) All material excavated, of whatsoever nature, is the property of the District, and will be disposed of as the engineer commissioner shall direct.

(e) The filling will be done in layers not exceeding 12 inches in thickness, and all material used for this purpose will be subject to approval. If improper or unsuitable material be used, it will be removed at the cost of the contractor.

(f) All measurements will be made in place, and payments made thereon.

(g) Should the grading involve work in both cut and fill, the measurement of it will be computed on the basis of the volume of the material in place in the cut only; the excavated material from the cut deposited in the fill will not be again paid for as fill. Should the amount of cut on the street not suffice to make the necessary fill, the amount borrowed from other designated localities will be paid for as grading.

24. *Setting 6 by 20 inch granite and bluestone curb.*—This curb will be set in the following manner: A trench parallel to the curb line, having a depth of 24 inches below the top of the curb, when set, and 20 inches wide, will be excavated to receive the curb and its gravel bed; the dimensions of the trench, in width, will be 14 inches from the curb line toward the building line of the street, and 6 inches from said curb line toward the center line of the street. In the trench thus prepared the curb will be set, and brought to line and grade, with plumb face. Spalls, of stone, hard-burned brick or other acceptable substance, prepared for the purpose, will be used to adjust the curb to grade, and these spalls will be so placed and adjusted as to support the curbing permanently and afford a firm and stable support for it without the use of small chips and fragments, used as "shimming" pieces, to wedge the stone in place. After the curb has been properly placed and adjusted to line and grade, the trench will be filled with gravel, of approved quality, to within 8 inches of the top of the curb, the filling to be done in layers of not more than 3 inches in depth, and thoroughly compacted by suitable ramming. Close contact joints and even surfaces must be made, and the lines and grades furnished strictly followed.

25. *Setting 8 by 8 inch granite curb.*—This curb will be set in the following manner: A trench parallel to the curb line, having a depth of 15 inches below the top of the curb when set, and 18 inches wide, will be excavated to receive the concrete and the curb. The dimensions of the trench in width will be 14 inches from the curb line toward the building and 4 inches from the curb line toward the center line of the street. In the trench thus prepared a bed of concrete, composed of 1 part of Portland cement, 4 parts of clean concrete sand, and 10 parts of screened pebbles, will be laid, filling the trench to a depth of 5 inches, the material to be mixed and laid under the same conditions as prescribed for laying cement concrete base for sheet asphalt pavements. On the base prepared and laid as above, the curb will be placed before the concrete has set, and adjusted to line and grade by setting it to a firm, unyielding bearing in a bed of freshly made concrete, by the use of heavy wooden mauls. The face of the curb must be plumb and true to line, and the top of it carefully set to grade with close and even contact joints. After the curb has been set to line and grade, the trench on the foot-walk side will be immediately filled with concrete to within 5 inches of the top of the curb, which will be thoroughly rammed and compacted, after which it will immediately be covered with earth to prevent injury to it through too rapid evaporation, etc. In case vitrified-block gutters are to be laid in front of the curb, any portion of the concrete base of the curb that would interfere with the laying of such gutters must be removed immediately after the curb is set.

26. *Resetting 6 by 20 inch granite and bluestone curb.*—The work to be done under this classification is identical with that specified for setting this class of curb, except no hauling of the curb is required other than that incidental to the necessary disposition of it upon the line of the work. Under this classification also the curb may be adjusted to line and grade without removing it from its trench, if so ordered by the engineer.

27. *Resetting 8 by 8 inch granite curb.*—The work to be done under this classification is identical with that specified for setting this class of curb, except that no hauling of the curb is required other than that incidental to the necessary disposition of it upon the line of the work, and no new concrete is required other than that sufficient to embed the stone at the back and adjust it to line and grade.

28. *General instructions.*—All curb will be furnished to the contractor at the District property yard, and will be hauled by him to the site of the work; any curbing unaccounted for, or improperly disposed of, or damaged, or broken, through careless or unskilled handling, will be charged against him, and the value of the loss to the District will be deducted from any amount due the contractor for work done, as determined by the engineer.

All expenses connected with or incidental to the work of setting or resetting curb, as described above, including the hauling of the curbing, preparing the curb trenches, and the necessary grading connected therewith, furnishing gravel and spalls, furnishing and placing concrete and all other material and labor necessary to execute the work in accordance with the specifications therefor, are included in the fixed price for the respective items as hereinafter stated; the cost of dressing, jointing, or cutting the curb will be paid for additionally, but no other claim for additional compensation will be entertained.

Should the adjoining brick footwalks be disturbed in order to set or reset the curb, the portion so disturbed shall be repaved, if required by the engineer, without cost to the District.

29. *Additional work.*—Contractors must do such additional work incident to construction of new pavements as may be ordered on each street by the engineer commissioner. All such work shall be in accordance with current District specifications. Prices paid for this work will be as stated below:

(1) Removing old curb, including haul not to exceed 2 miles, 8 cents per linear foot.

(2) Hauling same beyond distance of 2 miles, 1 cent per linear foot per mile.

(3) Hauling from District property yard and setting 6 by 20 inch curb, 25 cents per linear foot.

(4) Resetting 6 by 20 inch and bluestone curb, 25 cents per linear foot.

(5) Hauling from District property yard and setting 8 by 8 inch curb, 35 cents per linear foot.

(6) Resetting 8 by 8 inch curb on new concrete base, 31 cents per linear foot.

(7) Resetting 8 by 8 inch curb on old concrete base, 15 cents per linear foot.

(8) Dressing, jointing, and cutting curb, etc. (stonecutters' time), including setting-up labor, 65 cents per hour.

(9) Removing old rubble, cobble, flagging stone and brick, asphalt block, vitrified block or brick, etc., including hauling not to exceed 2 miles, 15 cents per square yard.

(10) Hauling same beyond distance of 2 miles, 1 cent per square yard per quarter mile or fraction thereof.

(11) Removing old granite block, including haul not to exceed 2 miles, and removal of old paving bed and cleaning concrete base where same exists, 25 cents per square yard.

(12) Hauling same beyond distance of 2 miles, 1 cent per square yard per quarter mile or fraction thereof.

(13) Removing old coal-tar or asphalt surface and binder from concrete base in connection with resurfacing work, including haul, 12 cents per square yard.

(14) Grading and hauling earth, not to exceed 1,000 feet, 55 cents per cubic yard.

(15) Grading and hauling macadam not to exceed 1,000 feet, 55 cents per cubic yard.

(16) Removing old coal-tar and bituminous pavement or base of the class laid since 1880 and hauling not to exceed 1,000 feet, \$1 per cubic yard.

(17) Removing old coal-tar and bituminous pavement or base of the class laid prior to 1880 and hauling same not to exceed 1,000 feet, \$1.85 per cubic yard.

(18) Removing old concrete base and hauling not to exceed 1,000 feet, \$1.50 per cubic yard.

(19) Hauling excavated material, per 100 feet, over first 1,000 feet, 1 cent per cubic yard.

(20) Laying new or old vitrified brick or block on new 6-inch concrete base, \$1.30 per square yard.

(21) Laying or relaying vitrified brick, or block on old concrete base, 60 cents per square yard.

- (22) Laying and relaying vitrified brick or block on gravel base, 40 cents per square yard.
- (23) Cleaning old vitrified brick or block for relaying, 25 cents per square yard.
- (24) Laying and relaying granite block, 75 cents per square yard.
- (25) Relaying cobble and rubble, 30 cents per square yard.
- (26) Repairing cement walks, \$1.50 per square yard.
- (27) Repairing brick walks, 25 cents per square yard.
- (28) Laying asphaltic or broken stone base in place, \$3 per cubic yard.
- (29) Laying Portland cement concrete base in place, \$5 per cubic yard.
- (30) Adjusting manhole tops and basin covers to grade, \$1.50 each.
- (31) Adjusting water-valve casings to grade, \$3 each.
- (32) Adjusting electric-light or telephone manhole tops to grade, as follows:
- (a) Size, 14 by 18 inches, \$1 each.
 - (b) Size, 36 by 36 inches, \$1.50 each.
 - (c) Size, 6 by 6 feet, \$4 each.

30. *Extra work.*—The contractor must be prepared to do any extra work that may be ordered in writing by the engineer, and for this he will be paid at current rates for work of a similar character, or, if the extra work should be of a class for which no rate is fixed by current contracts, the actual reasonable cost to the contractor, as determined by the engineer, plus 15 per cent of said cost.

The contractor shall have no claim for compensation for extra work unless same is ordered in writing by the engineer. All additional and extra work shall conform to current District of Columbia specifications therefor.

31. *Guaranty.*—All work under this contract will be guaranteed and kept in repair by the contractor without cost to the District for a period of five years from date of its acceptance by the commissioners. This date shall be the same as completion of the last street thereunder. Ten per cent of the cost of this work will be retained and disposed of as provided for by law.

It is further expressly understood and agreed that if any of the pavements laid should, for any reason whatsoever, within the period of five years, prove inferior to the best laid in the District prior to July 1, 1904, then the contractor shall, on demand of the commissioners, remove such defective pavements and relay them with new material of approved quality. The engineer commissioner shall decide the question of inferiority.

On expiration of guaranty for maintenance the work is to be inspected, and all imperfections must be corrected where and to such extent as the engineer shall direct, upon which the engineer will accept the same in writing, and until such acceptance the guaranty shall be in force. Repairs that may become necessary during the guaranty period will be made by the contractor when ordered by the engineer.

32. *Retain fund.*—The retain fund shall be subject to the control of the Commissioners of the District of Columbia for the purpose of maintaining the work in repair and making good any defects discovered during the period specified, and insuring that the terms of the contract shall be strictly and faithfully performed. In the event of the contractor failing to make such necessary repairs after notice to do so the commissioners may cause such work to be done and deduct the cost of the same from the retain fund, and, in their discretion, may require of the contractor and his sureties that any portion of the said retain fund which may have been expended for the maintenance of the work shall be made good by further deposit.

33. *Site of work.*—The bidder is expected to examine the site of work before bidding, as no allowance will be made for any unusual difficulties which may arise, either affecting the original construction or maintenance of the finished work.

34. Contractors shall be responsible for any work done upon any street over plumbers' cuts or other work done by the permission of the commissioners before the work is begun.

35. Certificates of indebtedness against street railway companies will be given to the contractor for all work done and all materials furnished by him for the space which must be paved and kept in repair at the expense of said companies in accordance with existing laws.

36. The commissioners reserve the right to modify these specifications as may from time to time seem desirable. The amount of compensation, if any, due the contractor for said modifications will be determined by the engineer commissioner on the same basis as in case of extra work.

SPECIFICATIONS FOR LAYING CEMENT SIDEWALKS.

1. *Classes "A" and "B."*—Work under class "A" will consist of all large work located on streets, avenues, places, etc., within the limits of the city of Washington (including Georgetown or West Washington), and all work on streets, avenues, places, etc., beyond said limits where the roadways are paved. Work under class "B" will

consist of all large work located on streets, avenues, places, etc., outside the limits of the city of Washington, as above, where the roadways are not paved, and of all small work wherever located. For classification for purposes of payment under this contract any item of work which exceeds 100 square yards will be rated and paid for as "large work," items of 100 square yards or less being rated as "small work." The aggregate of the item will be the determining consideration, since it may consist of two or more detached pieces in the same vicinity. Any questions as to classification under this paragraph will be decided by the engineer commissioner.

2. *Grading.*—The contractor is to make such cutting and filling as may be necessary to bring the foundation, when compacted, to the level of 5 inches below the surface of the finished pavement. Grading, either cut or fill, to the needed depth, not exceeding 1 foot on the average for each separate piece of work, and including the area of tree spaces, either continuous or interrupted, must be done without additional or extra charge, inclusive of removal and haul to designated property yard of all sidewalk material between the curb line and the back of the new work, except that of cement or asphalt, whether the old sidewalk is wholly replaced by the new cement part or not.

Grading in excess of the 1 foot average depth and removal of old cement or asphalt sidewalk will be paid for as additional work at prices stated herein.

Material for filling must be suitable for the purpose, and satisfactory to the engineer, and must be placed in layers and compacted for making good foundation, as required by him.

In case of excavation, any unsuitable or objectionable material in the bed, as determined by the engineer, is to be wholly removed and the spaces filled with broken stone or other suitable material satisfactory to him.

The contractor is to trim the bed so as to make it parallel to the surface of the finished pavement and thoroughly compact the bed by rolling or ramming without extra pay.

On the bed thus prepared will be laid, after compacting, 4 inches of cement concrete and 1 inch of cement mortar covered by a thin, dry surface coat, all made of the materials and in the manner hereafter described.

3. *Cement.*—The cement used will be a standard brand of Portland cement, uninjured by age or exposure, and delivered at the work in original undamaged packages. The cement shall conform to the current specifications for supplying Portland cement to the Engineer Department of the District of Columbia. The contractor shall keep the cement in store, under proper cover, in the city of Washington, and shall properly protect it until used. The engineer shall have the right to test the cement as he judges necessary and to reject any or all lots.

4. *Sand.*—The sand used shall be clean and sharp, from fine to coarse, free from sewage, mud, clay, mica, paper, leaves, chips, and other foreign matter, but may show when shaken with water and after subsidence not more than 3 per cent by volume of silt or loam. Sand used for surface layer must be screened on line of work; screen to be used for this purpose to be designated by the engineer. Sand stored at the work shall, when required, be dumped on boards or other suitable platform and kept as clean as when delivered.

5. *Gravel.*—The gravel shall be from small to medium size and as good in quality as the best Potomac River washed gravel. The gravel shall be free from dust, dirt, chips, leaves, and other foreign or objectionable matter, and when required shall be dumped on boards and cared for as provided for sand in the preceding paragraph.

6. *Mortar and concrete.*—The mortar shall be composed of the cement and sand in the proportion of 1 to 2, by volume, thoroughly mixed dry; a sufficient quantity of water will be added afterwards by fine sprinkling to form, upon remixing, a stiff plastic paste. The proportions are intended to secure a mortar in which every particle of sand is enveloped by cement and all voids in the gravel filled with mortar, and this result must be obtained to the satisfaction of the engineer. If the mixing be by hand, it shall be done on a water-tight platform with tight raised edges, and the cement spread first. No batch shall contain more than one barrel of cement.

The mixing shall be done by the use of shovels, hoes, and rakes until a thoroughly uniform mortar of proper consistency as above described is secured.

7. *Concrete.*—To the mortar, made as above directed, shall be added five parts by volume of the specified gravel which shall have been thoroughly drenched with water just before it is added to the mortar. The drenching shall not be done in the barrow, nor otherwise to permit the addition of free water to the mortar. Each batch of concrete shall be thoroughly mixed until each piece of gravel is wholly coated with mortar and in a manner satisfactory to the engineer. If the mixing be by hand, it shall be done on a water-tight platform, with tight raised edges, and in the mixing the gravel shall be first spread over the mortar. The concrete immediately after mixing will be spread upon the foundation so that the mortar shall remain evenly incorporated with the gravel, and then thoroughly compacted by ramming. The slab or flag divisions are then to be marked off to the size and markings cut 3 inches deep. The space

made by the cutting tool shall be immediately filled with dry sand and well rammed. Should the contractor so desire he will be permitted to substitute broken stone for the gravel used in concrete. Such stone should be hard, durable, and properly broken to a size small enough to pass through a ring 2 inches in diameter and may be the run of the crusher, containing not over 1 per cent of material passing a No. 70 sieve. It shall be free from foreign substances as provided for gravel.

8. *Mortar and surface.*—Mortar for the surface layer shall be made of the specified cement and sand, mixed in the manner as for mortar for concrete, but in the proportion of 2 to 3, by volume. The mortar shall be spread while fresh upon the concrete base while the latter is still soft and adhesive and before it shall have reached its first set, in such quantity that after thorough manipulation it shall be 1 inch in thickness. It is then to be leveled off and beaten with wooden battens, so as to break any air cells and make the surfacing perfectly solid and at the true grade. No pavement marked by sand which has been spread over it for protection will be accepted.

9. *Dry coat.*—A coating of dry cement and fine sand in equal proportions, by volume, and such part and kind of coloring matter as the engineer may direct, thoroughly mixed, is then to be floated into the layer, and by a skillful use of tools the surface is to be made smooth. The joints of the blocks will then be made to a depth of one-half inch immediately over the joints in the concrete base and the blocks brought to a true line and grade and finished without marginal line with trowels to the satisfaction of the engineer. The trowel finish above described will be the rule of the work, but in such cases as may require it for the sake of uniformity, with adjacent pavements or other sufficient reasons, the use of marginal lines and a rolled finish may be required. The decision as to the finish to be used will be made by the engineer.

Any lack of compaction between the concrete and mortar layers shall be sufficient reason for requiring entire removal and the substitution of new and satisfactory work.

10. *Protection of work.*—The pavement is to be kept moist, protected against the weather, and guarded against foot travel until it has set. Care shall be taken at all times not to interfere with business or travel more than is absolutely necessary for faithful execution of the work. Free ingress and egress from the street to entrances to premises fronting on the sidewalk shall be provided for at all times; and during the time that travel is closed the contractor shall provide a temporary walk and keep it in good condition, safe for pedestrians, and easy of access from adjoining walks or roadways. The contractor will not be allowed to obstruct private driveways or approaches, or to dig up or occupy the streets by material more than is absolutely necessary for the prosecution of the work. Special care will be taken to inconvenience the public as little as possible. The contractor will be held responsible for all injury done to the work in any way until it has been accepted and measured by the engineer.

11. *Driveways.*—Driveways shall be laid the same as sidewalks, except that the surface shall be divided into small squares as in K Street NW., near Connecticut Avenue. The plan of driveways shall be as directed by the engineer.

12. *Tree spaces.*—Tree spaces will be left as directed. These spaces and also other edges of the work not abutting against curb, poles, or straight lines of parking, terrace, or coping, will be outlined by planed boards of sound pine, 5 inches deep, set on edge to true line, and with top edge even with the pavement surface.

The edges of the new pavement not joining a curb or coping are to be clearly cut down on a true line 1 inch below the finished surface. The edges adjacent to interrupted tree spaces are to be plaster finished. The area of the tree space, either continuous or interrupted, is to be filled with earth up to the level of the pavement.

13. *Plumbing.*—All preliminary plumbing work will be done by the District. The contractor will be held responsible for all plumbing appurtenances within the limits of the finished sidewalk being at its grade, and for any damage or obstruction thereto due to his operation.

14. *Cleaning work.*—Before acceptance of the work it will be cleaned and all debris and unused material removed. No crumbling or uneven edges of the sidewalk will be allowed to remain. Pine strips at edges of concrete will not be removed before 48 hours after the pavement is laid.

15. *Inspection of work.*—The engineer will appoint an inspector to see that each piece of the work, including curb work, is graded and laid according to specifications and directions. The District will not pay for any work done during the absence of the inspector.

16. *Additional work.*—Contractors must do such additional work incident to construction of new pavements as may be ordered on each street by the engineer commissioner. All such work shall be in accordance with current District specifications. Prices paid for this work will be as stated below:

- (1) Removing old curb, including haul not to exceed 2 miles, 8 cents per linear foot.
- (2) Hauling same beyond distance of 2 miles, 1 cent per linear foot per mile or fraction thereof.

- (3) Hauling from District property yard and setting 6 by 20 inch curb, class A, 25 cents per linear foot.
- (4) Hauling from District property yard and setting 6 by 20 inch curb, class B, 28 cents per linear foot.
- (5) Resetting 6 by 20 inch and bluestone curb, 25 cents per linear foot.
- (6) Hauling from District property yard and setting 8 by 8 inch curb, class A, 35 cents per linear foot.
- (7) Hauling from District property yard and setting 8 by 8 inch curb, class B, 38 cents per linear foot.
- (8) Resetting 8 by 8 inch curb on new concrete base, 31 cents per linear foot.
- (9) Resetting 8 by 8 inch curb on old concrete base, 15 cents per linear foot.
- (10) Dressing, jointing and cutting curb, etc. (stonecutters' time), including setting-up labor, 65 cents per hour.
- (11) Removing old rubble, cobble, flagging stone and brick, asphalt block, vitrified block or brick, etc., including haul not to exceed 2 miles, 15 cents per square yard.
- (12) Hauling same beyond distance of 2 miles, 1 cent per square yard per quarter mile or fraction thereof.
- (13) Removing old granite block, including haul not to exceed 2 miles, and removal of old paving bed and cleaning concrete base where same exists, 25 cents per square yard.
- (14) Hauling same beyond distance of 2 miles, 1 cent per square yard per quarter mile or fraction thereof.
- (15) Grading and hauling earth, not to exceed 1,000 feet, 55 cents per cubic yard.
- (16) Grading and hauling macadam not to exceed 1,000 feet, 55 cents per cubic yard.
- (17) Removing old coal-tar and bituminous pavement or base and hauling not to exceed 1,000 feet, \$1 per cubic yard.
- (18) Removing old asphalt and cement sidewalk pavement and hauling same not to exceed 1,000 feet, \$1 per cubic yard.
- (19) Removing old concrete base and hauling not to exceed 1,000 feet, \$1.50 per cubic yard.
- (20) Hauling excavated material, per 100 feet, over first 1,000 feet, 1 cent per cubic yard.
- (21) Laying new or old vitrified brick or block on new 6-inch concrete base, \$1.30 per square yard.
- (22) Laying or relaying vitrified brick or block on old concrete base, 60 cents per square yard.
- (23) Laying and relaying asphalt block and vitrified brick or block on gravel base, 40 cents per square yard.
- (24) Cleaning old vitrified brick or block for relaying, 25 cents per square yard.
- (25) Laying and relaying granite block, 75 cents per square yard.
- (26) Relaying cobble and rubble, 30 cents per square yard.
- (27) Repairing brick walks, 25 cents per square yard.
- (28) Laying asphaltic or broken stone base in place, \$3 per cubic yard.
- (29) Laying Portland cement concrete base in place, \$5 per cubic yard.
- (30) Adjusting manhole tops and basin-covers to grade, \$1.50 each.
- (31) Adjusting water-valve casings to grade, \$3 each.
- (32) Adjusting electric-light or telephone manhole tops to grade, as follows:
 - (a) Size, 14 by 18 inches, \$1 each.
 - (b) Size, 36 by 36 inches, \$1.50 each.
 - (c) Size, 6 by 6 feet, \$4 each.

(33) Repairing cuts, etc., in cement walks when specifically ordered in writing under this paragraph, \$1.50 per square yard.

The last item of additional work consists in all necessary repairs to cuts in cement walks made by individuals, corporations, or by employees or agents of the District of Columbia when such repairs are specifically ordered to be made in writing. Such repairs are to be made within 15 days after receipt of such written notice in strict conformity with the within specifications. The payment therefor will be made monthly and no retent will be held on this class of work. The last three years' experience shows an annual aggregate of about 3,500 square yards of such cuts. Failure on the part of the contractor to make any such repair within 15 days may be authority for the execution of all subsequent work of this class by the District of Columbia and any excess cost above the contract rate thereby resulting will be charged against the contractor and deducted from any money due or to become due him.

The repaving of all roadway pavements necessarily disturbed in setting or resetting curb will be done by the District without cost to the contractor.

The setting and resetting of the curb shall be done according to current District of Columbia specifications for such work.

The old curb may be removed and reset to grade and line, or the old curb may be straightened and leveled without removing it from place, as required by the engineer.

17. Existing brick walks abutting the ends of new cement walks are to be relaid, if necessary, without cost to the District, in such manner as to make them conform to the grade, etc., of the new walks in a manner satisfactory to the engineer.

18. *Amount of work.*—The work to be done under this contract consists in laying cement sidewalks in such places and in such order as may be directed by the commissioners under appropriations for the fiscal year ending June 30, 1912. The amount of work to be done under this contract can not be stated with any precision, but as an indication of what is anticipated the amount of the contractor's bond will be determined on the basis of 70,000 square yards. No guarantee is given that the quantity here stated will be equalled or may not be exceeded. The bids will be classified and award of contract based on 55,000 square yards of class A and 15,000 square yards of class B.

19. *Extra work.*—The contractor must be prepared to do any extra work that may be ordered in writing by the engineer arising out of any modification of these specifications that may appear necessary, and for this he will be paid at current rates for work of similar character; or, if the extra work should be of a class for which no rate is fixed by current contracts, the actual reasonable cost to the contractor, as determined by the engineer, plus 15 per cent, the contractor shall have no claim for compensation for extra work unless the same is ordered in writing by the engineer. All additional and extra work shall conform to current District of Columbia specifications therefor.

20. *Guarantee.*—All work done under this contract will be guaranteed and kept in repair by the contractor without cost to the District for a period of five years from the date of its acceptance by the commissioners. This date shall be the same as that of the final voucher. Ten per centum of the cost of this work will be retained and disposed of as provided for by law.

On expiration of guarantee for maintenance, the work is to be inspected, and all imperfections must be corrected where and to such extent as the engineer shall direct, upon which the engineer will accept the same in writing, and until such acceptance the guarantee shall be in force.

21. *Retain fund.*—The retain fund shall be subject to the control of the commissioners of the District of Columbia for the purposes provided by law and for the purpose of maintaining the work in repair and making good any defects discovered during the period specified.

In the event of the contractor failing to make such necessary repairs after notice to do so the commissioners may cause such work to be done and deduct the cost of the same from the retain fund, and, in their discretion, may require the contractor and his sureties that any portion of the said retain fund which may have been expended for the maintenance of the work shall be made good by further deposit.

22. *Cuts.*—Contractors shall be responsible for any work done upon any street over plumbers' cuts or other work done by the permission of the commissioners before the work is begun.

The commissioners reserve the right to modify these specifications as may from time to time seem desirable. The amount of compensation, if any, due the contractor for said modifications will be determined by the engineer commissioner on the same basis as in the case of extra work.

SPECIFICATIONS FOR LAYING BITUMINOUS MACADAM PAVEMENT.

1. *Work.*—The work to be done under this contract will consist in setting curb, paving vitrified-block gutters on gravel base, and in laying bituminous macadam pavement, together with such other additional and extra work as may be necessary and authorized and as may be directed by the engineer commissioner, under appropriations for the fiscal year ending June 30, 1912.

2. *Amounts.*—The approximate amounts of work to be done are as follows:

Setting 8 by 8 inch curb, 4,000 linear feet.

Paving vitrified-block gutters, 1,500 square yards.

Laying bituminous macadam surface, 16,500 square yards.

The contractor must also be prepared to remove any old material as directed, to set and reset curb to line and grade as directed, and to pave and repave cobble or granite block gutters wherever ordered. The subgrade will be prepared and rolled by the District.

3. *Locality.*—The streets expected to be improved hereunder are Seventeenth Street NW., from end of present asphalt to B Street; Mount Pleasant Street, from Sixteenth Street to Park Road; and Fourteenth Street SE., from Good Hope Road to V Street.

The estimates are based on these streets, but any part of them may of necessity be omitted and other streets substituted for or added to the above list.

4. *Hauling, etc.*—(a) The old material from the streets not needed in the work under this contract will be hauled to the nearest property yard or to such other point as the engineer commissioner may direct.

(b) Lines and grades will be established by the engineer commissioner, and no work will be commenced until these are given.

(c) Contractors are to be responsible for the proper preservation of all stakes, etc., set by the engineer for the determination of line or grade; should any such be disturbed through carelessness the cost of replacing same will be charged against the contractor at a fixed price of \$2 for each point, to be deducted from any money found due at final settlement.

(d) All materials excavated, of whatsoever nature, are the property of the District, and will be disposed of as the engineer commissioner shall direct.

(e) Any cobblestones or bowlders or rock of acceptable quality encountered are to be separated from the other excavated materials and piled, as directed by the engineer, for the use of the District. Such material saved will be paid for at the rate specified in paragraph 11.

(f) All measurements will be made in place, and payments based thereon.

5. *Setting 6 by 20 inch granite and bluestone curb.*—This curb will be set in the following manner: A trench parallel to the curb line, having a depth of 24 inches below the top of the curb when set and 20 inches wide, will be excavated to receive the curb and its gravel bed; the dimensions of the trench in width will be 14 inches from the curb line toward the building line of the street, and 6 inches from said curb line toward the center line of the street. In the trench thus prepared the curb will be set, and brought to line and grade, with plumb face. Spalls, of stone, hard-burned brick, or other acceptable substance, prepared for the purpose, will be used to adjust the curb to grade, and these spalls will be so placed and adjusted as to support the curbing permanently and afford a firm and stable support for it, without the use of small chips and fragments, used as "shimming" pieces, to wedge the stone in place. After the curb has been properly placed and adjusted to line and grade the trench will be filled with gravel of approved quality to within 8 inches of the top of the curb, the filling to be done in layers of not more than 3 inches in depth and thoroughly compacted by suitable ramming. Close contact joints and even surfaces must be made, and the lines and grades furnished strictly followed.

6. *Setting 8 by 8 inch granite curb.*—This curb will be set in the following manner: A trench parallel to the curb line having a depth of 15 inches below the top of the curb when set and 18 inches wide will be excavated to receive the concrete and the curb. The dimensions of the trench in width will be 14 inches from the curb line toward the building and 4 inches from the curb line toward the center line of the street. In the trench thus prepared a bed of concrete composed of 1 part of Portland cement, 4 parts of clean concrete sand, and 10 parts of screened pebbles, will be laid, filling the trench to a depth of 5 inches, the material to be mixed and laid under the same conditions as prescribed for laying cement concrete base for sheet asphalt pavements. On the base prepared and laid as above the curb will be placed before the concrete has set and adjusted to line and grade by setting it to a firm, unyielding bearing in a bed of freshly made concrete by the use of heavy wooden mauls. The face of the curb must be plumb and true to line, and the top of it carefully set to grade with close and even contact joints. After the curb has been set to line and grade the trench on the foot-walk side will be immediately filled with concrete to within 5 inches of the top of the curb, which will be thoroughly rammed and compacted, after which it will immediately be covered with earth to prevent injury to it through too rapid evaporation, etc. In case vitrified-block gutters are to be laid in front of the curb any portion of the concrete base of the curb that would interfere with the laying of such gutters must be removed immediately after the curb is set.

7. *Resetting 6 by 20 inch granite and bluestone curb.*—The work to be done under this classification is identical with that specified for setting this class of curb, except no hauling of the curb is required other than that incidental to the necessary disposition of it upon the line of the work. Under this classification also the curb may be adjusted to line and grade without removing it from its trench, if so ordered by the engineer.

8. *Resetting 8 by 8 inch granite curb.*—The work to be done under this classification is identical with that specified for setting this class of curb, except that no hauling of the curb is required other than that incidental to the necessary disposition of it upon the line of the work, and no new concrete is required other than that sufficient to embed the stone at the back and adjust it to line and grade.

9. *Curb—General instructions.*—All curb will be furnished to the contractor at the District property yard, and will be hauled by him to the site of the work; any curbing unaccounted for, or improperly disposed of, or damaged, or broken through careless or unskilled handling will be charged against him, and the value of the loss to the District will be deducted from any amount due the contractor for work done, as determined by the engineer.

All expenses connected with or incidental to the work of setting or resetting curb, as described above, including the hauling of the curbing, preparing the curb trenches, and the necessary grading connected therewith, furnishing gravel and spalls, furnishing and placing concrete and all other material and labor necessary to execute the work in accordance with the specifications therefor, are included in the fixed price for the respective items as hereinafter stated; the cost of dressing, jointing, or cutting the curb will be paid for additionally, but no other claim for additional compensation will be entertained.

Should the adjoining brick footwalks be disturbed in order to set or reset the curb the portion so disturbed shall be repaved, if required by the engineer, without cost to the District.

10. *Cement.*—The cement used shall conform to the current specifications for supplying cement of its kind to the engineer department of the District of Columbia. No brand of cement will be accepted for use which has not established itself as a high-grade Portland cement and given satisfaction for three or more years in use under climatic or other conditions of exposure of at least equal severity as those of the work proposed. No cement shall be used upon the work until it has been tested in the office of the engineer commissioner and accepted by him, the tests to extend over such length of time, not exceeding 28 days, as the engineer commissioner may think necessary. The cement while in storage or upon the work, or while being hauled upon the work, shall be properly protected, and no cement shall be used which, in the opinion of the engineer commissioner, has been injured by age or exposure. The cement shall be kept by the contractor in store, under proper cover, in the city of Washington, subject to inspection for at least 10 days after notifying the inspector of asphalt and cements before it can be used on the streets, and if deemed advisable by the engineer commissioner, 28 days. Should the contractor's work be delayed by his failure to keep himself supplied with the necessary amount of approved cement the District shall have the right to furnish him with tested cement from the stocks on hand at its warehouse and charge said contractor with the cost of same at the rate of \$2 per barrel of Portland cement for each and every barrel so furnished, and collect the amount due therefor from any moneys found to be due to said contractor by the District.

11. *Paving and repaving cobble and granite block gutters.*—The space over which cobble paving will be done is to be excavated and trimmed to a depth of at least 12 inches below the grade of the paving when completed for the full width of the gutter or crossing to be laid. In the trench thus prepared a bed of bank gravel will be spread to a depth of 6 inches, and after being thoroughly compacted sufficient loose fine bank gravel will be placed upon it to form the bed for the paving stones, which are to be placed or embedded in the gravel in a firm and substantial manner, after which fine, clean gravel will be thoroughly swept into all the interstices and the surface rammed and solidly compacted to true and even grade and regular alignment, conforming to the line, grade, and section furnished. The entire paving will now be covered with a sufficient quantity of fine, clean bank gravel to be approved by the engineer, which is to remain on the newly constructed work until its acceptance by the engineer commissioner. The gravel to be used in the work must be acceptable to the engineer.

The price bid for paving cobble and granite block gutters will include any necessary haul of cobble and granite blocks when the same is found or has been delivered on the street or its immediate vicinity. If hauled on the street from other localities by the contractor such hauling will be estimated and paid for at the rate of 1 cent per square yard per quarter mile or fraction thereof for cobble and 1½ cents per square yard per quarter mile or fraction thereof for granite block.

12. *Paving vitrified-block gutters.*—The gravel bed will be prepared in the same manner as that for cobble gutters, and the vitrified block will be similarly paved thereon and thoroughly rammed. The gutter will then be well grouted with neat Portland cement. Care must be taken not to disturb the gutters until the grout has thoroughly set.

13. *Bituminous macadam pavement.*—A surface coat of bituminous concrete mixture 2 inches thick, after compression, is to be laid upon a base of crushed stone or gravel. The base will be furnished by the District of Columbia, in place and rolled, ready for surfacing. The amount of surface to be paved is about 16,500 square yards. The price bid will include mixing, placing, and rolling the bituminous surface.

14. *Paving materials*.—The paving materials shall be composed of crushed trap rock screenings, concrete sand, and mineral dust in the following proportions: Trap rock screenings, 2 parts; concrete sand, 1 part; and mineral dust, at least 5 per cent of the above aggregate, mixed with asphaltic cement. The various constituents of the mineral aggregate and asphalt cement shall be of the same kind and conform to District specifications for such materials for the year ending June 30, 1912, as follows:

15. *Trap rock*.—The trap rock shall be of a quality to be approved by the engineer, and shall be equal to that used by the District of Columbia for macadam roadways. The crushed stone will vary in size from 1 inch to screenings, and shall be devoid of dust.

16. *Sand*.—The sand shall be hard grained and moderately sharp. On shifting, it should have at least 25 per cent of material that would be caught on a 20-mesh per inch screen and 5 per cent of material that will pass an 80-mesh to the inch screen. If the sand to be used does not contain the desired fine material, mineral dust can be added to make up the deficiency, and in any case at least 5 per cent of such mineral dust shall be used.

17. *Mineral dust*.—This shall be any fine, hydraulic cement or limestone dust, the whole of which shall pass a 30-mesh screen and at least 85 per cent pass a 100-mesh screen.

18. *Asphalt*.—The asphalt shall be refined until homogeneous and free from water and shall not at any time be heated to a temperature high enough to injure it. The refined product shall contain at least 90 per cent of bitumen soluble in carbon bisulphide, and 100 parts shall not require more than 30 parts of the flux to produce the asphalt cement described in paragraph 19.

19. *Petroleum oil*.—The oil in use in the manufacture of asphalt cement shall be a petroleum from which the lighter oils have been removed by distillation without cracking, until the oil has the following characteristics:

Free from water and foreign matter.

Flash point, not less than 300° F.

Distillate at 400° F. for 30 hours, less than 10 per cent.

The flash point shall be taken in a New York State closed oil tester.

The distillate shall be made with about 50 grams of oil in a small glass retort, provided with a thermometer and packed entirely in asbestos. The residue in the retort, after distilling, must be fluid at 75° F., and not coarsely crystalline on cooling.

Any other softening agents fulfilling the above tests, and approved by the engineer commissioner, may be used in place of petroleum oil.

20. *Asphalt cement*.—The asphalt cement must be of refined asphalt, fluxed when necessary with petroleum residuum, asphaltic oil, refined maltha, or other approved flux. The cement must be practically free from water and must be within the range of 40 and 70 penetration when tested at 77° F. on Dow penetration machine with No. 2 needle, 100 grams, 5 seconds. The degree of penetration to be fixed by the engineer commissioner.

Preference will be given to an asphalt cement that is not readily affected by the action of water, provided it is satisfactory in other respects. If an asphalt cement is accepted that is affected by water, some provision satisfactory to the engineer commissioner must be made to guard against the results of such action, and such work must be included in the price bid. The use of an asphalt under these specifications shall be subject to the approval of the engineer commissioner, and if an asphalt has been proposed for use by the contractor and approved by the engineer commissioner no change in the asphalt to be used shall be made unless with the approval of the engineer commissioner. If an asphalt or flux is submitted for use which has not been successfully used for a period of at least two years for paving under conditions similar to those existing in the District of Columbia, its use may be limited to such extent as may be deemed advisable, or it may be rejected for use entirely in the discretion of the engineer commissioner.

The bitumen of the asphalt cement must comply with the following tests:

(1) It must be of such consistency that when tested at 32° F. it will not show a hardness below 10 penetration and when tested at 115° F. it will not be softer than 350 penetration.

(2) When a briquette of the pure bitumen, having a minimum cross section of one square centimeter, is tested for ductility at 77° F., the bitumen must stretch to a distance of 15 centimeters before breaking.

(3) When the bitumen is heated in an open tin box three-fourths inch deep by 2½ inches in diameter at a temperature of 300° F. for 18 hours in a hot-air oven it must not show a loss by volatilization of over 5 per cent and it must not have been hardened over 50 per cent by this heating.

The asphalt cement must never be heated to a temperature that will injure it.

When the asphalt cement contains over 5 per cent of material that will separate by subsidence while in a molten condition, it must thoroughly agitated before drawing from storage and while in use in the supply kettles so as to insure a uniform cement.

These properties shall be determined by tests made by uniform methods, descriptions of which are on file in the office of the engineer commissioner.

21. *Asphalt paving mixture.*—The materials complying with the above specifications shall be mixed in proportions by volume depending upon their character and the traffic on the street and upon the character of the asphalt and will be determined by the engineer commissioner, but the percentage of bitumen in any mixture soluble in carbon bisulphide shall not exceed the limits 7 to 9 per cent. If the proportions of the mixture are varied in any manner from those specified the mixture will be condemned; its use will not be permitted; and, if already placed on the streets, it must be removed and replaced by proper materials at the expense of the contractor.

22. *Laying asphalt surface.*—The stone and paving cement shall be heated separately to a temperature of about 300° and shall be thoroughly mixed while hot by machinery. The proportion of paving cement shall be sufficient to thoroughly coat each particle of the aggregate, and the entire mixture shall be subject to the approval of the engineer. The mixture will be hauled while hot to the site of the work and shall be covered until deposited on the street. The temperature at the time of dumping shall not be less than 220°. The hot mixture shall be evenly spread with hot tools upon the base to such a thickness as will make a layer 2 inches in thickness after rolling. It shall then be rolled with a steam roller weighing not less than 1 ton per foot of tread of roller until no further compression occurs. The finished surface shall be free from lumps or depressions and shall be true to the required cross section.

23. *General instructions.*—All curb and vitrified block will be furnished to the contractor at the District property yards and will be hauled by him to the site of the work. Any of these materials unaccounted for, or improperly disposed of, or damaged or broken through careless or unskillful handling will be charged against him, and the value of the loss to the District will be deducted from any amount due the contractor for work done, as determined by the engineer.

All expenses connected with or incidental to the work of setting or resetting curb and laying or relaying gutters, as described above, including the hauling of the curbing, preparing the curb trenches, and the necessary grading connected therewith, furnishing gravel and spalls, furnishing and placing concrete, and all other material and labor necessary to execute the work in accordance with the specifications therefor, are included in the fixed price for the respective items stated. The cost of dressing, jointing, or cutting the curb will be paid for additionally, but no other claim for additional compensation will be entertained.

Should the adjoining brick footwalks be disturbed in order to reset the curb, the portion so disturbed shall be repaved, if required by the engineer, without cost to the District.

24. *Additional work.*—Contractors must do such additional work incident to construction of new pavements as may be ordered on each street by the engineer commissioner. All such work shall be in accordance with current District specifications. Prices paid for this work will be as stated below:

- (1) Removing old curb, including haul not to exceed 2 miles, 8 cents per linear foot.
- (2) Hauling same beyond distance of 2 miles, 1 cent per linear foot per mile.
- (3) Hauling from District property yard and setting 6 by 20 inch curb, 25 cents per linear foot.
- (4) Resetting 6 by 20 inch bluestone curb, 25 cents per linear foot.
- (5) Resetting 8 by 8 inch curb on new concrete base, 31 cents per linear foot.
- (6) Resetting 8 by 8 inch curb on old concrete base, 15 cents per linear foot.
- (7) Dressing, jointing, and cutting curb, etc. (stonecutters' time), including setting-up labor, 65 cents per hour.
- (8) Removing old rubble, cobble, flagging stone, and brick, asphalt block, vitrified block, or brick, etc., including haul not to exceed 2 miles, 15 cents per square yard.
- (9) Hauling same beyond distance of 2 miles, 1 cent per square yard per quarter mile or fraction thereof.
- (10) Removing old granite block, including haul not to exceed 2 miles, and removal of old paving bed and cleaning concrete base where same exists, 25 cents per square yard.
- (11) Hauling same beyond distance of 2 miles, 1 cent per square yard per quarter mile or fraction thereof.
- (12) Removing old coal-tar or asphalt surface and binder from concrete base in connection with resurfacing work, including haul, 12 cents per square yard.
- (13) Grading and hauling earth, not to exceed 1,000 feet, 55 cents per cubic yard.
- (14) Grading and hauling macadam not to exceed 1,000 feet, 55 cents per cubic yard.

- (15) Removing old coal-tar and bituminous pavement or base of the class laid since 1880 and hauling not to exceed 1,000 feet, \$1 per cubic yard.
- (16) Removing old coal-tar and bituminous pavement or base of the class laid prior to 1880 and hauling same not to exceed 1,000 feet, \$1.85 per cubic yard.
- (17) Removing old concrete base and hauling not to exceed 1,000 feet, \$1.50 per cubic yard.
- (18) Hauling excavated material, per 100 feet, over first 1,000 feet, 1 cent per cubic yard.
- (19) Laying new or old vitrified brick or block on new 6-inch concrete base, \$1.30 per square yard.
- (20) Laying or relaying vitrified brick or block on old concrete base, 60 cents per square yard.
- (21) Relaying asphalt block and vitrified brick or block on gravel base, 40 cents per square yard.
- (22) Cleaning old vitrified brick or block for relaying, 25 cents per square yard.
- (23) Laying and relaying granite block, 75 cents per square yard.
- (24) Relaying cobble and rubble, 30 cents per square yard.
- (25) Repairing cement walks, \$1.50 per square yard.
- (26) Repairing brick walks, 25 cents per square yard.
- (27) Laying asphaltic or broken-stone base in place, \$3 per cubic yard.
- (28) Laying Portland cement concrete base in place, \$5 per cubic yard.
- (29) Adjusting manhole tops and basin covers to grade, \$1.50 each.
- (30) Adjusting water-valve casings to grade, \$3 each.
- (31) Adjusting electric light or telephone manhole tops to grade, as follows:
 - (a) Size, 14 by 18 inches, \$1 each.
 - (b) Size, 36 by 36 inches, \$1.50 each.
 - (c) Size, 6 by 6 feet, \$4 each.

25. *Bids.*—The contractor will, for the prices bid, do all the work prescribed in these specifications; do all the necessary grading and trimming of the roadbed and all rolling; provide bridges, fences, and other means of maintaining travel on intersecting streets, roads, and railroads, and all private driveways after giving due notice to parties affected thereby; maintain the same in good and safe condition as long as may be necessary, and then remove such temporary expedients and restore such roads to their proper condition; provide watchmen, lights, fences, and other precautionary measures necessary to the protection of persons and property; furnish all materials (except as specified) and all tools and implements, labor, and transportation required to lay and put in complete order for use the specified pavement; and do each and all of these to the satisfaction of the engineer. Upon the completion of the work he will remove any temporary structures erected during the progress of the work and restore all fixtures, pavements, and parkings, both public and private, to satisfactory condition.

26. *Extra work.*—The contractor must be prepared to do any extra work that may be ordered in writing by the engineer, and for this he will be paid at current rates for work of a similar character, or, if the extra work should be of a class for which no rate is fixed by current contracts, the actual reasonable cost to the contractor, as determined by the engineer, plus 15 per cent of said cost.

The contractor shall have no claim for compensation for extra work unless same is ordered in writing by the engineer. All additional and extra work shall conform to current District of Columbia specifications therefor.

27. *Retain fund.*—The retain fund shall be subject to the control of the Commissioners of the District of Columbia for the purpose of maintaining the work in repair and making good any defects discovered during the period specified. In the event of the contractor failing to make such necessary repairs after notice to do so the commissioners may cause such work to be done and deduct the cost of the same from the retain fund and, in their discretion, may require of the contractor and his sureties that any portion of the said retain fund which may have been expended for the maintenance of the work shall be made good by further deposit.

28. *Guaranty.*—All work under this contract will be guaranteed and kept in repair by the contractor without cost to the District for a period of five years from the date of its acceptance by the commissioners. This date shall be the same as that of the final voucher on each street. Ten per cent of the cost of the work will be retained and disposed of as provided for by law.

On expiration of guaranty for maintenance, the work is to be inspected, and all imperfections must be corrected where and to such extent as the engineer shall direct, upon which the engineer will accept the same in writing, and until such acceptance the guaranty shall be in force.

29. *Site of work.*—The bidder is expected to examine the site of work before bidding, as no allowance will be made for any unusual difficulties which may arise, either affecting the original construction or maintenance of the finished work.

30. Contractors shall be responsible for any work done upon any street over plumbers' cuts or other work done by permission of the commissioners before the work is begun.

31. The commissioners reserve the right to modify these specifications as may from time to time seem desirable. The amount of compensation, if any, due the contractor for said modification will be determined by the engineer commissioner on the same basis as in the case of extra work.

SPECIFICATIONS FOR CONSTRUCTION OF SEWERS.

1. *Description and location of work.*

2. *Bids.*—The contractor shall, for the price or prices bid, do all the work prescribed in these specifications; make the requisite excavations for building the sewer and the appertaining structures and connections; shall do all ditching, diking, pumping, bailing, and draining, all sheeting, bracing, and shoring; shall make all provisions necessary to maintain and protect adjacent buildings, fences, trees, gas pipes, water courses, conduits, culverts, sewers, railways, electric lines, and other structures, and shall repair all damages to the same which may result from his operations; shall provide all bridges, fences, or other means of maintaining and protecting travel on intercepted streets, roads, and railroads, and on streets or roads in which the trenches are excavated, after giving due notice to parties affected thereby; shall maintain the same in good and safe condition so long as may be necessary, and shall then remove such temporary expedients and restore such ways to their proper condition; shall provide watchmen, red lights, fences, and all other precautionary measures necessary to the protection of persons and property; shall provide all necessary centers, molds, and forms; shall construct all foundations, all brick, concrete, stone, and timber work; shall set in place all ironwork, and refill all trenches; shall furnish all materials (except those specially mentioned in paragraph 5), and all tools, implements, labor, and transportation required to build and put the sewer in complete working order; and shall do each and all to the satisfaction of the engineer.

For lumber left in trench no payment shall be allowed, unless the same shall be specifically directed by the engineer prior to the refilling of the trench. The contractor ordinarily will use his judgment about leaving bracing lumber in place, but shall be, in all cases, responsible for any injury which may result to the sewer or to adjacent pavements, structures, water, gas, or other conduits by the removal of bracing, sheeting, or shoring.

3. *Drawings.*—The drawings which illustrate the work to be performed and which show the location, shapes, dimensions, and materials of the sewer to be constructed are on file in the engineer department. All work executed under this contract must conform with these drawings.

Should the position of pipes and other underground objects be found to differ from that indicated on the drawings, or if it should be found necessary to modify the lines, grades, or positions, the contractor shall have no claim for extra compensation on that account.

4. *Street occupancy and traffic.*—The operations of the sewer contractor must be so conducted that traffic upon steam and street railways and ordinary street traffic may be maintained. All material excavated must be removed from the street or deposited as back-filling upon completed work.

5. *Materials.*—The contractor will be furnished at the District property yards with all the necessary sewer pipes, manhole steps, and ordinary cast-iron manhole tops with covers, the value of which material, actually used in the work, will not be charged against him. He will also be furnished at the District yards with all the cements, vitrified bricks, and invert blocks required for the work, the value of which will be charged against him at the following rates: Portland cement, \$1.50 per barrel; invert brick, \$18 per thousand; vitrified invert blocks, \$0.50 per linear foot.

Should cement be furnished in bags, the bags will be returned by the contractor or charged against him at the rate of \$0.11 each.

The contractor shall convey materials from the points where they are delivered by the commissioners and store the same in the vicinity of the work. He shall be responsible for the loss incurred, or damage done, to said materials from the time of their delivery until the work is accepted. No materials shall be applied to other use than that for which they are issued.

The materials from the trenches and those used in constructing the sewer appurtenances shall be so deposited as not to hinder nor endanger public travel, and so that free access may be had at all times to all fire plugs, water gates, manholes, and catch basins in the vicinity of the work.

6. *Samples.*—The bricks used upon the work must be equal in quality to the sample bricks in the office of the superintendent of sewers.

7. *Order.*—The work shall be prosecuted in such order as the engineer shall direct. He shall determine whether the conditions are favorable for working, and may suspend the work or any portion of it whenever, in his opinion, the conditions are such as will not insure first-class construction.

8. *Measurement.*—Measurements of work shall be made as follows:

Length: The length of sewer paid for by length and the length of excavation shall be the whole length of the completed sewer, without deduction for the space occupied by manholes.

Width: The width of the trench at any cross section shall be considered as equal to the greatest horizontal diameter of the sewer at that cross section, including the walls thereof, with 9 inches added thereto.

Depth: The depth of any cross section shall be considered as equal to the mean depth from the surface to the outside bottom of the sewer at that section.

In submitting proposals bidders will be guided by the profiles given upon the drawings. These are approximate and any variance therefrom shall not be the basis of any claim for compensation above that provided for in the contract rates.

9. *Foremen.*—The contractor shall employ capable superintendents or foremen to represent him on the work and they shall receive and obey orders from the engineer.

10. *Mechanics.*—The foremen, mechanics, and others employed by the contractor shall be skilled in the several parts which are given them to do.

11. *Obstacles.*—The prices bid to include the cost of the removal of and delay or damages occasioned by trees, roots, timber, or masonry structures, or other obstacles (whether shown on the plans or not), except rock.

12. *Pavements.*—All pavements disturbed in doing sewer work for the width of the trenches, and defined in section 8 of these specifications, will be relaid by the commissioners. The contractor shall, without cost to the District, haul all cobble, rubble, bricks, blocks, and tiles taken up by him to a property yard to be designated by the engineer, and take receipt therefor. Macadam, hydraulic base, and sheet pavement material removed shall be piled in suitable places along the line of the work so as not to cause unnecessary obstruction of any kind, and during the progress of the work shall be guarded by the contractor against misappropriation. Whenever so ordered by the engineer, the contractor shall haul this material to a property yard to be designated by the engineer. No paving material of any kind removed in making excavation shall be used or appropriated by the contractor without written permission from the engineer.

If any pavement be injured by the contractor outside the limits prescribed by the trenches, the cost of restoring such excess shall be charged against him and deducted from any amount found due him. He will maintain the surface over the line of the trench up to the street grade, with the best material obtainable from the excavation, until such time as the pavement is relaid. The cost of subsequent repairs of all pavements relaid over or adjacent to sewer trenches on account of sewer work, or of any work made necessary, within the period of 1 year, for which the sewer and its appurtenances are guaranteed, by settlement of the back-filling of the trenches will be charged against the 10 per cent retained and invested, as provided in paragraph 9 of the instructions to bidders.

13. *Private property.*—Care shall be taken not to move, without the consent of the person owning or controlling them, any trees, fences, water or gas pipes, sewers, drains, conduits, poles or wires for electrical purposes, railways, or other structures, and in crossing or working near them they shall be sustained securely in place until the work is completed, and shall be so treated as to render their condition as efficient and permanent as before.

In sewer construction along a right of way through public or private property the contractor shall so conduct his work as not to damage said property, and so as to interfere with its ordinary use as little as possible; he shall, upon completion of the sewer, restore the surface as nearly as possible to the condition in which he found it. No material shall be used or removed from the premises without the consent of the owner or responsible party in charge of the property.

14. *Trenches.*—The ground shall be excavated in open trenches to such width and depth as may be necessary for proper sewer construction. If, however, in the judgment of the engineer commissioner, it is deemed advisable, special permission may be given for the construction of portions of the work in tunnel, in which case excavation will be allowed as if construction were in open trench. But at any time during such construction the engineer commissioner may direct the excavation to be made in open trench.

The utmost care shall be taken to spare the roots of shade trees, and to protect trees and shrubbery in public parks adjacent to line of work from injury. Also care must be taken to avoid unnecessary damages to park surfaces and roadways during construction.

Whenever it is necessary to intercept work near, or in any way interfere with any public or house sewer, drain, pipe, catch basin, culvert, or other similar structure, the contractor shall maintain the same in working order and shall repair and make good any damage done to or by any of them during the progress of the work.

During construction, permission may be secured to substitute for any sewer in use which is affected by the work hereby contracted for a drain upon an approved location of equal capacity and of substantial construction, subject in all particulars to the approval of the engineer commissioner.

The portion of the trench below the springing line of the sewer shall be excavated to conform to the external form and dimensions of the same. If the character of the ground met with in excavating is such that the external form of the sewer can not be preserved, the excavation shall be made to conform as nearly as possible to the external shape and dimensions of the sewer, and the space between the external sewer lines and the bottom and sides of the excavation as made, for a width equal to the outside horizontal diameter of the sewer at the springing line, shall be filled with hydraulic cement, concrete, or brick masonry, as directed.

15. *Rock*.—Only such ledge or rock, as in the opinion of the engineer requires blasting for its removal, or boulders of one-half cubic yard or more in volume which are removed from the trench, will be estimated as rock excavation. Before beginning rock excavation the contractor must procure a written order from the engineer. All excavated material shall be considered and classed as ordinary excavation, except rock removed by special orders as above. Indurated gravel, loose or disintegrated rock, and materials of like character, in the opinion of the engineer commissioner, will not be classed as rock.

For rock excavated from trench \$3 per cubic yard will be allowed the contractor and excavation classified as rock will not be included also as ordinary excavation.

16. *Blasting*.—Before blasting, the contractor must procure a written order from the engineer.

Blasts shall be covered with heavy timbers chained together. Caps or other explosives shall in no case be kept in the same place in which dynamite or other explosives are stored, and, in general, the precaution against accidents from blasting shall be entirely satisfactory to the engineer. The contractor shall be liable for all damages to persons or property caused by blasts or explosives.

17. *Foundations*.—If the material found in the sewer trench be, in the opinion of the engineer, unsuitable for a foundation, upon receipt of a written order it shall be removed by the contractor to such depth and width as may be directed and suitable material shall be deposited in its place. This additional excavation and deposited material will be paid for as extra work.

18. *Connections*.—Connections with existing sewers shall be made by the contractor according to directions given by the engineer. The right to permit the connection of any public or house sewer with a sewer under construction before completion of the latter is expressly reserved to the commissioners.

19. *Water-tight work*.—Water-tight work is required in all construction.

20. *Bricks*.—Bricks used shall be of the best quality of whole new bricks, of uniform size, compact texture, burned hard and entirely through, with true surface, free from injurious cracks and flaws, tough and strong, and having a clear ring when struck together. They must have a crushing strength of not less than 4,500 pounds per square inch, and must not absorb more than 10 per cent of their weight of water, after having thoroughly dried and then immersed for 24 hours in water. Samples will be subject to such tests as may be satisfactory to the engineer.

The truest and smoothest bricks will be used in the face of the masonry. All bricks delivered for use shall be culled by the contractor when required. No bricks rejected in the culling shall be used in any work done under this contract.

21. *Broken stone*.—Broken stone for concrete masonry must be hard and of durable character, the run of the crusher, and it shall not contain more than 1 per cent of materials passing a No. 10 sieve. It shall be thoroughly cleansed from all foreign substances, and, if so ordered by the engineer, it shall be screened and washed. Detritus, or any material other than hard, angular fragments of stone, shall be considered a foreign substance. Every piece of stone for concrete masonry must be small enough in largest dimension to pass through a ring 2 inches in diameter.

22. *Pebbles*.—Pebbles shall be from fine bank or river gravel, thoroughly screened, free from earthy or other foreign matter, and small enough to pass through a ring 1½ inches in diameter, and shall not contain more than 5 per cent of material which shall pass through a No. 10 sieve.

23. *Sand*.—Sand for masonry shall be clean, sharp sand, containing both fine and coarse grains, free from mud, sewage, mica, or other foreign matter, at least equal in desirable qualities to the samples in the property office, District of Columbia, marked

"Sample of sand for paving and concrete," and "Sample of sand for brickwork and plastering," respectively.

24. *Water*.—Water used for mortar and concrete shall be fresh and clean, free from earth, dirt, or sewage, and shall be used in such quantity as the engineer may direct.

25. *Platforms*.—Platforms shall be provided upon which all sand and broken stone shall be placed when brought upon the line of the work, and there kept until used.

26. *Mortar boxes*.—Tight mortar boxes shall be provided by the contractor, and no mortar shall be made otherwise than in such boxes, except for concrete. No deposits of sand or mixing of mortar will be permitted upon pavements.

27. *Mortar*.—Mortar used in this work shall be composed of Portland cement in perfect condition and loose, dry sand in the proportion of 1 barrel of cement weighing (net) 380 pounds, and 9 cubic feet of sand, thoroughly mixed dry, and a sufficient quantity of water afterwards added to make a rather stiff paste. It shall be used within an hour after the addition of the water, but no mortar shall be used after having become hard or set.

28. *Mixing mortar*.—The thorough mixing and incorporation of all materials will be insisted upon. If done by hand labor, the dry cement and sand shall be turned over and mixed with shovels by skilled workmen not less than six times before the water is added.

29. *Concrete masonry*.—Concrete masonry will be classified as follows:

Concrete masonry "A" will be composed of 1 barrel Portland cement (net weight 380 pounds), 8 cubic feet sand, 8 cubic feet broken stone, 8 cubic feet pebbles; water as directed by the engineer.

Concrete masonry "B" will be composed of 1 barrel Portland cement (net weight 380 pounds), 10 cubic feet sand, 10 cubic feet broken stone, 10 cubic feet pebbles; water as directed by the engineer.

Concrete masonry "C" will be composed of 1 barrel Portland cement (net weight 380 pounds), 12 cubic feet sand, 12 cubic feet broken stone, 12 cubic feet pebbles; water as directed by the engineer.

Concrete masonry "D" will be composed of 1 barrel Portland cement (net weight 380 pounds), 10 cubic feet sand, 20 cubic feet pebbles; water as directed by the engineer.

Suitable appliances, satisfactory to the engineer, for measuring the ingredients for each batch of concrete shall be kept on the line of the work.

30. *Mixing concrete*.—The thorough mixing and incorporation of all materials will be required. If done by hand labor, the dry cement and sand shall be mixed and turned over by skilled workmen with shovels not less than six times before the water is added; the stone, after being wetted, shall be added to the mixed cement, sand, and water. The whole mass shall then be thoroughly turned over by skilled workmen with shovels not less than four times, until every particle of stone is completely enveloped with mortar.

The whole operation of mixing and laying each batch shall be performed as expeditiously as possible by the aid of machinery or a sufficient number of skilled men.

31. *Setting*.—Concrete shall not be used after it has begun to show evidences of setting. No concrete which has once set shall be used as metal for mixing a new batch.

32. *Placing*.—The concrete shall not be thrown or dumped from a height, but must be lowered in a vessel and so carefully deposited as to retain the constituents evenly incorporated, as mixed, entirely free from foreign matter of any kind.

33. *Ramming*.—Each batch of concrete shall be spread in place in horizontal layers not exceeding 5 inches in thickness before ramming, and shall be at once thoroughly compacted by ramming.

34. *Water*.—No concrete or other work shall be laid in water, and no water shall be thrown upon or allowed to flow over or rise upon masonry until the mortar has had ample time to become set.

35. *Molds, etc.*—Strong molds, forms, and centers, satisfactory to the engineer, made to fit the curves and shapes of all work done under this contract shall be provided by the contractor for each stage and section of the work, and when they lose their proper dimensions of shape, they shall be replaced by others. Planking forming the faces of all exposed walls shall be so matched and placed as to give an even and uniform surface to the concrete. Before being used the molds shall be scraped clean from cement and dirt. Their setting up, striking, and general management shall conform to directions given by the engineer. For concrete inverts, where brick lining is omitted, sheet steel collapsible forms must be used. All work must be specially smooth and well filled, and no plastering will be allowed.

36. *Invert blocks*.—Invert blocks shall be laid true to line and grade. A concrete bed of the required shape and dimensions shall be first prepared and a layer of mortar

$\frac{1}{2}$ inch thick spread upon this bed. Upon this coat of mortar the blocks shall be laid, and each block shall be carefully pressed down and bedded upon the mortar, so as to insure a close contact throughout the bottom and back of surface of the blocks. The joints between consecutive blocks shall be full mortar joints and as close as practicable.

37. *Vitrified bricks*.—Each course of vitrified invert bricks shall be laid in full mortar joints truly on line, and the joints upon the face of the work shall not exceed $\frac{3}{16}$ inch in thickness.

38. *Brickwork*.—Bricks must be thoroughly wet by immersion immediately before laying. Every course shall be laid with a line. Every brick must be thoroughly laid in full mortar joints on bottom, side, and end, which, for each brick must be formed by one operation. In no case is the joint to be made by grouting, or by working in mortar after laying the brick. No joint shall exceed $\frac{3}{8}$ inch in thickness. All joints on faces shall be trowel struck.

39. *Bonding*.—Brick masonry of sides and arches shall be bonded and keyed as directed, especial care being exercised with each ring against laying too large joints at the back. All joints shall be normal to the section of the sewer and all "lipping" of brick must be carefully avoided.

40. *Bedding*.—Brick masonry below the springing line in brick sewers must be well and firmly bedded upon the foundation prepared for it or upon the wall of the adjacent excavation, as the case may be; and all spaces which would otherwise exist between the outer lines of the sewer and the walls of the foundation or excavation must be filled with hydraulic cement mortar, concrete, or brick masonry, as may be directed.

All unfinished brick masonry must be "racked-back" or toothed, as may be directed, and when new work is joined to the unfinished portion, the latter must be thoroughly cleansed.

41. *Arches*.—Concrete arches shall be allowed to set at least 24 hours before any back filling or other weight shall be put upon them, and no walking or working thereon shall be allowed during said time.

42. *Plastering*.—As soon as practicable after the "keying up" is completed the back of every arch of brick or concrete shall be thoroughly cleaned of dirt and loose or projecting mortar, and shall then be smoothly plastered, from the springing line to the crown with a coat of mortar $\frac{3}{8}$ inch thick; the work to be done by skilled workmen, using tools satisfactory to the engineer. This coat shall be allowed to become fully set before any back filling is placed or walking allowed upon it.

43. *Piling*.—Piles are not to be less than 8 inches in diameter at the small end, of live timber, sound, straight, and free from rot, large knots, wind shakes, and all other defects. They may be of pine, spruce, white oak, or such other durable timber as the engineer commissioner may approve. They are to be well and carefully driven, with small end down, plumb and true to position, by a heavy hammer, delivering blows in rapid succession, to a penetration under the last blow of one-half inch for a hammer weighing 2,000 pounds falling 12 feet.

Each pile shall be stripped of bark, have all knots pared smooth, and shall have the lower end squared or pointed before the driving, as may be directed.

After driving the pile shall be cut off so as to form a true and even bearing for the cap timber, which shall be fastened to each pile by a 2-inch tree nail of white oak, Georgia or Florida pine, or hickory, or a 1-inch driftbolt driven through the cap and 10 inches into the head of the pile. Any pile split or otherwise injured in driving, or driven out of position will be replaced by a sound one in true position. The top of any pile shall not be drawn over more than 9 inches after driving to allow capping. Any pile which is driven a greater distance from its true position than 9 inches, or whose penetration exceeds one-half inch under the last blow, will be rejected, and must be replaced by a pile driven adjacent thereto as directed by the engineer. While being driven, should a pile head become broomed or otherwise injured so as to prevent effective driving, the top shall be sawed off as directed. When necessary, in the judgment of the engineer, each pile shall be bound, while driving, with a strong iron band of a proper size to protect pile head. In all cases the pile must refuse for the penetration specified, with the top sufficiently above subgrade to permit cutting off all that portion of the piles split or otherwise injured in any way by the process of driving when the pile is sawed off at subgrade. In no case will the use of a "follower" be permitted. The piles must be carefully sawed off by a horizontal cut at the required grade line. For piles rejected for any cause whatever no allowance will be made.

44. *Lumber*.—All lumber for use in the completed structure must be sound, straight-grained, and free from sap, loose or rotten knots, wind shakes, or any other defect which would tend to impair its strength or durability; must be straight, of the dimensions given, with square edges and uniform width and thickness throughout each piece. Each floor plank must be secured to each cap timber upon which it rests by two 6-inch spikes. All framing must be done in a thorough workmanlike manner, and both

material and workmanship will be subject to the inspection and approval of the engineer commissioner.

45. *Bracing*.—When, in the opinion of the engineer, it is necessary to protect the masonry from injury, the sewer shall be braced inside without any additional charge. The bracing shall be done in a manner satisfactory to the engineer and it shall be left in place until he shall direct its removal.

46. *Dirt*.—In lowering material into the trenches care should be taken not to throw dirt upon freshly laid concrete or other masonry in place. At all stages and for all classes of work concrete and mortar must be kept as free as possible from dirt of every kind, and, if unavoidably mixed with dirt, shall be removed and replaced to the satisfaction of the engineer.

47. *Back filling*.—The back filling must be brought up evenly on both sides of the sewer with the best material from the excavation, so that no unbalanced pressure shall be brought upon the masonry. It shall be spread in horizontal layers not exceeding 6 inches in depth before ramming, and thoroughly rammed to the top of the trench. No less than two men shall be employed in ramming for each shoveler engaged in replacing the back filling, which shall be compacted with iron-shod rammers, each weighing not less than 12 pounds. When the back filling is deposited, by means of wheel barrows, carts or wagons, or by machinery, the ramming shall be done as directed by the engineer.

All slides or caving of sides of the trenches or cuts shall be taken out and back filled by the contractor.

As the trench is refilled, the bracing, etc., shall be removed in such manner as to prevent the caving of the sides of the trench. If sheeting is used, so much of it as extends below the crown of the arch of the basin must be withdrawn, unless otherwise directed by the engineer, after refilling over the haunches, but before more than 6 inches of earth is placed on the crown of arch and before the center is struck.

As the sheet planks are withdrawn the vacancies left by each shall be carefully refilled by ramming with tools especially adapted for the purpose, by watering or otherwise, as may be directed.

48. *Manholes*.—Brick manholes of the form shown on the drawing shall be constructed in the sewers wherever ordered by the engineer.

49. *Steps*.—Each manhole shall have steps of wrought iron $\frac{3}{4}$ inch in diameter, built into the brickwork, as shown on the drawings. Similar steps shall be built into the inverts of the sewers at the manholes as the brickwork progresses, as may be directed.

50. *Manhole tops*.—The contractor shall carefully and securely fit each manhole with a cast-iron frame and cover, as shown in the drawings.

In sewers of greater span than 3 feet the manholes shall spring from one side of the arch; in sewers having a span of 3 feet or less, the axis of the manholes shall be directly over the center of the sewer.

Connection for public and house sewers and catch basins shall be built into the manholes wherever required.

51. *Sewer pipe*.—Sewer pipe will be of the ring or plain cylindrical pattern.

52. *Laying*.—Laying pipe sewer shall be executed in the following manner: The trench shall be first excavated by the use of the prescribed form to the required depth; shape, and dimensions; concrete shall then be compactly rammed in the bottom to the required depth and its upper surface brought to a plane lower than the grade of the sewer by thickness of the wall of the pipe. The pipe must be perfectly supported throughout its entire length upon its concrete bed; bringing the pipe to grade by means of stone, pieces of band, etc., will not be permitted. Concrete shall then be rammed upon the sides and haunches of the pipe to the full specified width and thickness, care being taken that no void spaces exist. The greatest care must be exercised that the alignment and grade of the pipes be not disturbed. The joints between the pipes shall be closed by pointing with stiff mortar, after which a layer of concrete shall be carried over them to a thickness of not less than 4 inches at any point, and having bottom and top widths of not less than 12 inches and 14 inches. During the suspension of the work at night or at other times a suitable stoppers shall be placed in the last pipe laid to prevent earth from washing in. No sand, mud, mortar, concrete, or other material shall be allowed on the inside of pipe sewers. Upon completion they must be left straight, clean, smooth, and in every other respect acceptable. Mortar and concrete shall be allowed to set before any back filling is placed or walking is allowed upon the sewer, and the greatest care must be taken not to disturb the pipes, haunching, and banding.

53. *Replacng*.—When necessary to pump sewage in replacing and laying relief sewers, the material pumped shall be carried by means of hose or other water-tight conveyor to the sewer or manhole designated by the engineer, and it shall not be allowed to flow into or over the surface.

54. *Inspection.*—The contractor shall, when requested, provide the engineer with with such ladders, lanterns, tools, and labor, samples and other facilities as may be necessary for inspecting materials and work.

Imperfect materials or work which may be discovered shall be replaced or corrected immediately on the requirement of the engineer, notwithstanding that it may have been overlooked by the proper inspector, and included in a partial payment. Materials condemned or rejected by the engineer may be branded or otherwise marked and shall on his demand be at once removed to a satisfactory distance from the work. Any omission to disapprove the work at the time of inspection, or at the time of any monthly or other estimate shall not relieve the contractor of any of his obligations, and all work, of whatever kind, which during its progress and before it is finally accepted, may become damaged or prove unacceptable for any cause shall be removed by the contractor and replaced by good and satisfactory work. If not removed within 24 hours after written notice from the engineer, it shall be removed by that officer and the cost charged to the contractor and deducted from any amount due or which may become due him.

FORMS ACCOMPANYING ALL SPECIFICATIONS.

INSTRUCTIONS TO BIDDERS.

These instructions will become a part of the contract.

1. *Signature.*—Proposals must be signed by the bidder with the signature in full. When a firm is a bidder the agent who signs the firm name to the proposal shall state, in addition, the names of the individuals composing the firm. When a corporation is a bidder, the person signing shall state under the laws of what State the corporation was chartered and the name and title of the officer having authority under the by-laws to sign contracts. The proposal shall also bear the seal of the corporation, attested by its secretary. Any one signing the proposal as agent must file with it legal evidence of his authority so to do.

2. *Address.*—Post-office address, county and State, must be given after the signature.

3. *Prices.*—All prices must be written in words as well as expressed in figures. In case of variation the written prices shall govern.

4. *Identification of proposal.*—Proposals will be placed in a sealed envelope, so marked as to indicate its contents without being opened. This envelope will be placed in another addressed to the Commissioners of the District of Columbia, Washington, D. C.; if forwarded otherwise than by mail it must be delivered to the secretary to the Board of Commissioners.

5. *Rejection of bids.*—Reasonable grounds for supposing that any bidder is interested in more than one proposal for the same item will cause the rejection of all proposals in which he is interested. The commissioners reserve the right to waive any informality in the proposals received, and to reject any and all proposals, or parts of a proposal, and to make the award in such manner as they consider best for the interests of the District of Columbia. Proposals received after the time advertised for opening bids will be returned unopened. No proposal will be accepted from any failing bidder or contractor known as such on the records of the District of Columbia for 20 years prior to date of bid.

6. *Experience.*—Bidders must present satisfactory evidence that they have been regularly engaged in the business of constructing such work as they propose to execute, and in case the lowest responsible bidder has never done any work for the District of Columbia, he must, prior to the award of contract, be able to show work done by him within a distance of 1,000 miles from the District of Columbia, and may be required to pay the necessary expenses of an inspection of such work by such representatives of the District of Columbia, not exceeding two in number, as may be sent by the engineer to examine it.

7. *Capital and plant.*—Bidders must present satisfactory evidence that they are fully prepared with the necessary capital, materials, and machinery to conduct the work to be contracted for to the satisfaction of the commissioners, and to begin it promptly when ordered.

8. *Guaranty deposit.*—Bidders will inclose a receipt of the collector of taxes for the District of Columbia for the amount named in the form of proposal as a guaranty of good faith, and as reasonable fixed and liquidated damages, and not as a penalty, to the District of Columbia, and which they agree to forfeit in the event of their failure to enter into contract, with good and sufficient sureties, within 10 days after notification of acceptance of their proposal.

9. *Return of deposits.*—Bidders' deposits will be returned on application to the chief clerk, engineer department, to unsuccessful bidders after award of contract is made, and to successful bidders after execution of contract.

10. *Sundays or legal holidays.*—No work shall be done on Sundays or legal holidays, except in cases of emergency, and then only with the consent of the engineer, nor shall any work be done at night unless authorized by the engineer.

11. *Changes.*—Changes, alterations, or interlineations must be explained by footnote in proposal.

12. *Withdrawal.*—If a bidder wishes to withdraw his proposal, he may do so before the time fixed for the opening, without prejudice to himself, by communicating his purpose in writing to the secretary to the Board of Commissioners, and when reached it shall be handed to him or to his authorized agent unread.

13. *Breach.*—No waiver of any breach of the contract shall constitute a waiver of any subsequent breach of any part thereof, nor of the contract.

14. *Laws affecting public work.*—The attention of bidders is invited to the "act regulating the retent on contracts with the District of Columbia, approved March 31, 1906."

"That on all contracts made by the District of Columbia for construction work there shall be held a retent of ten per centum of the cost of such construction work as a guaranty fund to keep the work done under such contracts in repair, and that the terms of such contracts shall be strictly and faithfully performed. On contracts for the construction of asphalt, tar, brick, cement, or stone pavements the retent shall be held for a term of five years from the date of completion of the contract. On contracts for the construction of bridges and sewers the retent shall be held for a term of one year from the date of completion of the contract. On contracts for the construction of buildings, and other contracts for construction work, the retent shall be held until the completion of the work. All retents for one year or more shall be deposited with the Treasurer of the United States as now required by law."

Also the following clause of the act of March 3, 1887:

"That the Treasurer of the United States, as commissioner of the sinking fund of the District of Columbia, shall not be compelled hereafter to invest money retained from District contracts hereafter entered into; but may, in his discretion, retain such funds without interest, or invest the same in any class of United States or District of Columbia bonds, at the request and at the risk of the contractor, whenever the sum retained on any contract shall reach the sum of one hundred dollars or more; any sum less than one hundred dollars shall be retained without interest as above."

Also to public act No. 82, approved February 28, 1899, relative to payment of claims for material and labor furnished for District of Columbia buildings, and to the public act relative to the limitation of the hours of daily service of laborers and mechanics upon the public works of the United States and the District of Columbia.

All laws and regulations of the United States and of the District of Columbia, especially in so far as they relate to the protection of life and property, are to be strictly observed.

GENERAL STIPULATIONS.

These stipulations are a part of the specifications.

1. *Bond.*—Good and sufficient bond in the penal sum not less than 25 per cent of the estimated amount of the contract, with sureties or a surety company satisfactory to the commissioners, will be required from all contractors guaranteeing that their contract will be faithfully performed; that the contractor or contractors will be responsible for all claims for damages to persons, property, or premises arising out of his or their operations prior to the acceptance of the finished work, and that he or they will promptly make payments to all persons supplying him or them with labor and materials in the prosecution of the work provided for in the contract. In the event that the sureties or surety company become unsatisfactory to the said commissioners they may in their discretion require from the contractor an additional or new bond in the same or lesser penal sum with sureties or a surety company satisfactory to them and to be conditioned as above required. Upon the failure to furnish such additional or new bond within 30 days after written notice so to do, all payments under this contract will be withheld until such additional or new bond is furnished.

2. *Transfers.*—No contract or any interest therein shall be transferred by the parties to whom the award is made; such transfers will be null and void, and will cause the contract to be annulled and the work to be given to other parties under the conditions mentioned herein.

3. *Patents.*—The contractor will be required to hold the District of Columbia harmless against all claims for the use of any patented article, process, or appliance in connection with the contract herein contemplated.

4. *Contractor's risk.*—All loss or damage due to negligence or arising out of the nature of the work to be done or from any unforeseen or unusual obstructions or difficulties which may be encountered in the prosecution of the same, or from the action of the elements will be sustained by the contractor.

5. *Employees.*—The contractor shall employ capable superintendents or foremen to represent him on the work, and they shall receive and obey orders from the engineer. He shall so conduct his operations as to interfere with the work of other District contractors as little as possible. The foreman, mechanics, and others employed by the contractor shall be skilled in the several parts which are given them to do.

An employee or agent of the contractor who shall use profane or abusive language to the inspector, or otherwise impede or embarrass him in the performance of his duty, or who, in the opinion of the engineer, is careless or incompetent, or obstructs the progress of the work, or disobeys or evades the instructions given by the engineer, shall be immediately discharged and not again employed without the consent of the engineer.

6. *Weather.*—The contractor shall suspend all work under the contract when notified by the engineer that the weather is unsuitable for carrying it on.

If work is allowed during cold or freezing weather, the contractor shall take such additional precautions as the engineer shall require, without additional expense, and under no circumstances shall materials be used which have been injured by the weather.

7. *Inspection.*—Inspectors may be appointed who shall have access to all parts of the work at all times and whose duty it shall be to point out to the contractors any neglect or disregard of the specifications of contract; but the right of final rejection of the work will not be waived at any time. Upon all technical questions concerning the execution of the work, in accordance with the specifications and measurements thereof, the decision of the engineer shall be final. Ordinarily one inspector will be employed by the District of Columbia for each section of the work under contract; but if, on account of any apparent disregard of the specifications, additional inspectors shall be required, they will be employed by the District of Columbia, at the rate not to exceed \$6 per diem each, and the cost of same will be charged to the contractor.

8. *Condemned work.*—All materials furnished and work done not in accordance with these specifications shall be removed within 24 hours after written notice from the engineer by and at the expense of the contractor, or in case of failure to do so, it shall be removed by the District of Columbia and the cost thereof charged to the contractor and deducted from the amount due or which may become due him. None but the best material of the several descriptions shall be used.

9. *District material.*—No materials furnished by the District shall be applied to any other use, public or private, than that for which they are issued to the contractor. The contractor will be held responsible for all materials delivered to him upon requisition, and shall be charged for all materials delivered upon said requisition. Should the amount of materials actually delivered and not properly accounted for exceed the amount used upon the work, the cost to the District of the difference must be made good by the contractor, and will be deducted from any moneys which may be due him.

Any material that is property of the District that is not accounted for by the contractor to the satisfaction of the engineer will be charged against the contractor at the contract price for similar material.

10. *Failure.*—If the contractor shall delay or fail to commence with the delivery of the material or the performance of the work as specified herein, or shall, in the judgment of the Commissioners of the District of Columbia, fail to prosecute faithfully and diligently the work in accordance with the specifications and requirements of this contract, then, in either case, the said commissioners shall have the power to annul this contract by giving notice in writing to that effect to the contractor, and upon the giving of such notice all payments to the contractor under this contract shall cease, and all money or reserved percentage due or to become due thereunder shall be retained by the said commissioners until the final completion and acceptance of the work herein stipulated to be done; and the said commissioners shall have the right to recover from the contractor whatever sums may be expended by the District of Columbia in completing the said contract in excess of the price herein stipulated to be paid the contractor for completing the same, and also all cost of inspection and superintendence, including all necessary traveling expenses connected therewith, incurred by the said District of Columbia in excess of those payable by the said District of Columbia during the period herein allowed for the completion of the contract by the contractor, and the said commissioners may deduct all the above-mentioned sums out of or from the money or reserve percentage retained as aforesaid; and upon the giving of the said notice the said commissioners shall be authorized to proceed to secure the performance of the work or delivery of the materials, by contract or otherwise, in accordance with law.

11. *Payment.*—Payments will be made monthly provided the progress of the work is satisfactory, less 10 per cent of each estimate, to be withheld until final payment; but 10 per cent of the cost of the work will be retained and invested as hereinbefore provided.

12. *Conveniences.*—The contractor shall provide, for use of the District inspectors stationed at paving plant, suitable office and testing room with such plain furniture as may be necessary for the proper transaction of their business as agents for the District. They shall also furnish, when needed for use of laborers on line of work, necessary toilet conveniences secluded from public observation.

13. *Cleaning up.*—On the completion of work it shall be thoroughly cleaned before it will be accepted.

14. *Lines.*—All necessary lines and levels will be given by the engineer by means of suitable marks, and in establishing them the contractor shall provide such materials and assistance as may be required by the engineer. All marks given are to be carefully preserved, and if destroyed through carelessness the cost of replacing them shall be charged against the contractor at a fixed price of \$2 for each point, to be deducted from any money found due at final settlement.

15. All loss or damage due to negligence or arising out of the nature of the work to be done, or from any unforeseen or unusual obstructions or difficulties which may be encountered in the prosecution of the same or from the action of the elements, will be sustained by the contractors.

16. *Interpretation.*—Any doubt as to the meaning of these specifications will be explained by the engineer, who shall have the right to correct any errors or omissions in them when such correction is necessary for the proper fulfillment of their intention. Whenever the word "commissioners" is used in these specifications, it is understood to designate the Commissioners of the District of Columbia. Whenever the word "engineer" is used, it is understood to designate the Engineer Commissioner of the District of Columbia, or, in his absence, his duly authorized assistants, assistant engineers, and inspectors representing him, limited by the special duties intrusted to them.



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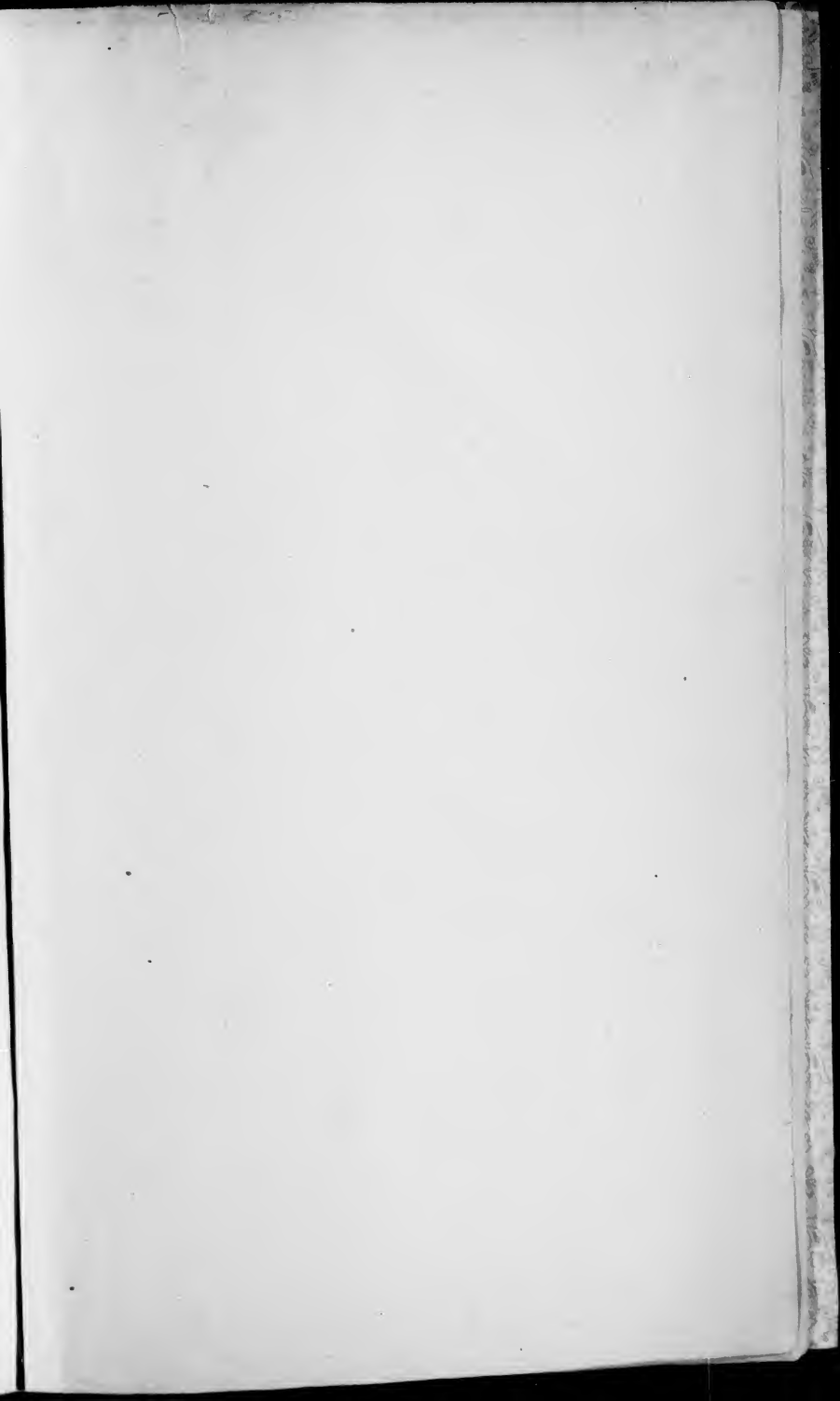
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